

ECONOMIC AND SOCIAL ASPECTS OF FEDERAL RECLAMATION

BY
DOROTHY LAMPEN

A DISSERTATION

Submitted to the Board of University Studies of the Johns
Hopkins University in Conformity with the Requirements
for the Degree of Doctor of Philosophy
1929

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BALTIMORE
1930

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FOREWORD

Miss Lampen has traced the evolution of irrigation laws and policies since the original Federal reclamation act was passed in 1902. To do this she has made an exhaustive examination of debates in Congress, reports of state and other irrigation authorities, and the reports of inquiries made from time to time to determine what should be done to adjust reclamation to the changing economic and social conditions of the arid West.

In material results the Federal reclamation act has been a gratifying success. It has changed dreary, unpeopled deserts into productive and valuable farms which surround thriving and attractive towns. More than 600,000 people now live on these projects, where, before Federal reclamation, jack rabbits and coyotes were the principal inhabitants. The people under these works maintain 685 schools and 683 churches. The water supplied from Federal irrigation works in 1928 irrigated crops worth \$138,500,000. Their value almost equaled the entire debt of irrigators to the Government, which was then \$166,000,000. It is less now.

Aside from the creation of wealth in land, the canals and reservoirs built by the Reclamation Bureau are an unquestioned success from an engineering standpoint. They represent as high a standard of permanence and success in operation as are to be found in any country.

Less can be said of the social and economic ideas and practices which have characterized reclamation. These, in the beginning, were based on a conception of life in the West which was already disappearing and which since then has changed faster than the economic ideas and practices of reclamation. At the outset it was assumed that the only essential necessity of reclamation was works to conserve and distribute water; that once this was provided, people to prepare the land for irrigation and cultivate the soil would flock in and in some way dig in and succeed.

The original act gave neither aid nor direction in carrying out the unbelievably hard and costly work of smoothing off the land so that water would flow over it evenly, building roads and houses and subduing the soil that had been baked for centuries. It did not require that the settler have either capital or experience. The man who reached the land office first could file on any farm, regardless of whether he was a millionaire or a tramp, whether he had ever been a farmer or seen a farm, and the settlers were supremely confident and careless of the future. Many of them had no serious purpose. They filed on the land as speculators. In the minds of everyone, the main requirement was money to build works. It was anticipated that projects would be located mainly on public land which settlers could obtain under the homestead law, and that water rights would not cost over \$25 an acre; that the pioneer reaching the project in his covered wagon could build a log or sod house, and with his own effort, complete what the Government had begun.

Opportunities for doing this were more favorable then than now. Game was plentiful. There was an abundance of free pasture land outside the irrigated area, and the people who sought homes on these projects were inured to privation. Wearing patched clothes and living on food meagre in variety and quantity were not regarded as hardships because all the other people were doing the same thing.

Under those conditions success depended mainly on human endurance and fortitude. People relied more on the smallness of their yearly outlay than on the size of their yearly income.

Today conditions are so radically different that solvent reclamation requires different policies and practices. The pioneering life has disappeared. The arid states are crossed by numberless hard-surfaced highways on which automobiles travel from one side of the continent to the other with almost the speed of the railway train. There are no more opportunities for cheap reclamation. Much costlier works are now required. The cost of a water right and of preparing the land

for irrigation is from five to ten times what it was twenty-five years ago. Farm buildings and equipment cost much more than they formerly did. The standards of living have been improved. The heavy taxes needed to provide good roads, good schools, and the other incidents of a higher civilization, all make increasing demands upon the farmer's purse, and lessen to that extent the amount available to him for the reclamation and development of his farm.

Now farms must be intensively cultivated and their business affairs efficiently managed. The bills which must be met can be paid only by growing and marketing crops of high acreage value. The farmer must understand his calling. He must use modern machinery and labor-saving devices. There are no opportunities for ignorance and inexperience. Credit has assumed an importance unknown at the outset. Those who are able to meet the exacting requirements of reclamation find in the life on a reclamation project greater rewards, greater satisfactions by far than were possible at the earlier date. Today the average value of crops grown on reclamation projects is two and a half times the average of the whole country. Teamwork in development, in the business of buying and selling and in social affairs, makes life on the modern reclamation project a more stimulating and enjoyable existence than was possible or even dreamed of in the pioneering period. To obtain these rewards requires a greater initial outlay, more ability, better equipment, both materially and in the way of experience. The problems of reclamation grow out of the fact that the extent of these economic and social changes has not been understood, either by legislators or by the public.

The thoroughness of the research with which Miss Lampen has traced the history of this legislation and the clear statement of existing conditions make her story well worth the attention alike of legislators and economists, who seek to understand what the conquest of aridity requires, and also of those who seek homes on the land.

ELWOOD MEAD.

PREFACE

This study has been limited to a consideration of the economic and social aspects of Federal Reclamation in the United States, a phase of our Reclamation policy which has heretofore been neglected in the greater majority of writings on the subject. In this respect it is to be contrasted with the more numerous studies available on Reclamation Engineering. While Federal activities in the latter field have now been well thought out and organized, economic endeavors have proved less fruitful; and we are "still drifting in our attention to those things that bring contentment and earning power."

However, even though Reclamation has not arrived at the success in economic development outlined for it by the Reclamation fathers, it can in no sense be considered a failure until a real attempt has been made to recognize the importance of the human element in successful project development.

In the following pages an effort has been made to set forth a few of the means by which it is believed complete economic success will more rapidly be attained.

The writer wishes to express her sincere appreciation for the generous assistance given by the Professors of Political Economy at the Johns Hopkins University, especially Dr. Jacob H. Hollander and Dr. George E. Barnett. It is a pleasure also to acknowledge the kindness of Dr. Elwood Mead, Commissioner of the Bureau of Reclamation, in providing much material that would otherwise have been unavailable and for his suggestions and helpful criticisms throughout the period the study was in preparation.

The several project superintendents have, through correspondence, materially aided the development of the investigation. To Mr. George O. Sanford of the Sun River Project and Mr. D. P. Fabrick of the Bynum District, the writer is especially grateful.

Indebtedness is further recognized to Miss Laura E. Krejci for reading the manuscript and for her assistance and many helpful suggestions.

For the constant encouragement and indirect assistance which have attended all of her scholastic endeavors, the writer is especially grateful to her mother and father, and it is to them that this study is dedicated.

D. L.

CONTENTS

	PAGE
Foreword	v
Preface.....	ix
Chapter I. Legislation and Irrigation.....	13
Chapter II. Progress under the Federal Reclamation Law.....	49
Chapter III. Financial Aid for Reclamation Settlers	76
Chapter IV. Coöperative Development on Irrigation Projects.....	91
Chapter V. Legislative Efforts to Provide Aided and Directed Settlement for Federal Reclamation.....	114
Conclusion	123

ECONOMIC AND SOCIAL ASPECTS OF FEDERAL RECLAMATION

CHAPTER I

LEGISLATION AND IRRIGATION

As an ancestral heritage, the founders of the American Republic had a deeply-rooted respect for landed aristocracy. In Great Britain land which had been held in large family estates for generations was seldom cut up into small parcels and distributed to individual land owners and operators. In the United States, despite early opposition, the accepted public land policy has been of an entirely opposite nature. Here it has been the policy, consistently maintained, to sell the public land in small parcels and thus to get the land directly into the hands of small owners who shall also be the cultivators of the soil.¹ This policy is based on the theory that great national security and wealth are gained by a spread of people over the vacant area. This may be regarded as the difference between the "dominial" policy of land holding and land disposition—such as the British system fostered—and the American system of "alienation" of the public domain.

After an extended series of half-successful attempts to dispose of the public land in small divisions by cash sales, in accordance with the alienation theory, the Homestead Act was passed May 20, 1862.² This act, by making settlement a con-

¹ The Scioto Company, established 1788, the Ohio Company and the Symmes Purchase were outstanding exceptions to this principle. Through a desire for immediate income, Congress favored the sale of land to companies instead of to individuals in the years immediately following the adoption of the constitution. See Benjamin H. Hibbard, *A History of the Public Land Policies*, 45, 48, 50.

² U. S. Stat. at Large, XII, 392. For twenty years or more before final action was taken on the Homestead bill, many groups had been urging land reform measures which would afford for every man who desired it a home upon the land. Labor bodies were especially active in their declaration as, for example, is evidenced in a report made by a Committee of Workingmen appointed in 1844 to inquire into the

dition for obtaining title to the land, considerably modified and nearly supplanted the sales system. The Government thus took the position that public lands were to be regarded not as sources of revenue but rather as a means to encourage the creation of homes. From that time on, the policy of "using the public domain in the promotion of settlement, the very basis of national strength and security, of civilization itself, was accepted and furthered in the disposition of the western lands."³

The increasing difficulty of obtaining settlers for the vacant areas remaining in the hands of the government, despite the continued high land values, led to an examination of conditions. A search into the reasons for this state of affairs focused critical attention upon the Homestead Act; and the conclusion was reached that the act was not suited to encourage settlement in the arid West, the only part of the country left open for settlement. This fact was so apparent by 1877 that in the report of the Secretary of the Interior, submitted to Congress on November 11 of that year, it was specifically stated that the pre-emption and Homestead laws

causes which had produced a depression of labor in the United States. The report read in part: "Having made due inquiry into the facts, the Committee are satisfied that there is a much larger number of laboring people congregated in the seaboard towns, than can find constant and profitable employment. . . . Our refuge is upon the soil, in all its freshness and fertility—our heritage is on the Public Domain, in all its boundless wealth and infinite variety. This heritage once secured to us, the evil we complain of will become our greatest good." Quoted from *Working Man's Advocate*, of July 6, 1844 in "A Documentary History of American Industrial Society," Vol. VII, 294-296. *Labor Movement 1840-1860* edited by John R. Commons. The reforms most current during the period which aimed to guarantee the "same right and title to the ownership of a home for every human being," were the freedom of the public lands to actual settlers only, homestead exemption from any liability such as sale, debt, tax or mortgage, and the limitation of the area owned to 160 acres. *Ibid.*, p. 290. Reformers demanded that "all monopoly of and speculation in the Lands yet Public shall be stopped." "They do not ask merely that landless men of today may be provided with a Home, but that the best possible provision shall be made for future generations also." Quoted from *N. Y. Weekly Tribune*, March 21, 1846 in Vol. VIII, 65. "A Documentary History of American Industrial Society."

³ Hibbard, *op. cit.*, 138.

did not adequately provide for the settling of the desert lands of the United States. In 1889, when the issue of irrigation had become fairly well defined, the *Globe-Democrat* (St. Louis) published the following statement: "The issue was not very important so long as we had an abundance of desirable public lands for the use of settlers; but we have now reached a point where we have little left in that respect. It is only by redeeming the deserts that we can hope to meet the future demand for homesteads, and certainly the Government should make all reasonable efforts to solve a problem of so much importance."⁴

From the point of view of the development of desert land policy, the last thirty years in the nineteenth century were years given over to developing a coherent public mind on irrigation. In the following pages an effort will be made to study the development of modern laws in regard to irrigation in relation to the course of modern thought. Only to attempt this is to find, as Professor Dicey observes, that "dry legal rules have a new interest and meaning when connected with the varying current of public opinion";⁵ and it is here the aim to exhibit the close dependence of this, the latest phase of public-land legislation, upon the currents of the public mind.

It is a well-known fact that public opinion exercises a direct and immediate control over legislation. It is doubtful whether any field of legislation can show this truth more clearly than the one under consideration. Yet it is difficult to allocate this influence definitely. Since laws are as much the cause as the effect of legislative opinion, it is difficult to say whether law has been the cause of public opinion on irrigation or public opinion the cause of the laws. The plan consequently will be to examine the course of legislation and then to consider what have been the main currents of predominant opinion during the period and to trace the influence of these on the history of the law.

When the inadequacy of the earlier measures had once been

⁴ S. Mis. Doc., No. 84, 50th Cong., 2d sess., 13.

⁵ A. V. Dicey, *Law and Public Opinion in England*, ix.

realized, action of a general nature was quickly taken; and, as a preliminary, a general law was passed in 1866⁶ which conferred the right of way to ditches and canals on the public lands for mining and agricultural purposes, in recognition of the use of water for those needs. As early as 1867, several bills⁷ were introduced in Congress, having as their purpose the encouragement of irrigation and reclamation of unproductive lands in California. Soon after, similar bills were submitted for other states.⁸ Most of the bills in this early period took the form of requests for land grants to aid in the construction of canals for irrigating purposes.

But, along with these sectional interests, there was a growing national curiosity about those parts of the country which were then largely uninhabited and considered practically uninhabitable. On May 7, 1868, a resolution⁹ was submitted in the House to the effect that the "Secretary of the Interior be directed to furnish this House with copies of the correspondence he has opened with a view to procure information as to the most approved method of irrigation, and also to obtain data illustrative of the natural history and industrial

⁶ U. S. Stat. at Large XIV, 253.

⁷ On March 11, 1867, a bill was introduced in the House "Granting a right of way and making a grant of land to the State of California to aid the Sierra Nevada and Contra Costa Irrigation and Land Company in the construction of a canal in said State." Cong. Globe (1867), 40th Cong., 1st sess., 58. March 12, 1867 a bill was proposed to "enable the State of California to reclaim certain unproductive lands within her limits" and another, "granting lands to aid in the construction of a canal or canals for irrigating purposes in the State of California." Ibid., p. 58. See also Ibid., p. 93.

⁸ Practically every state had its cherished project to support and there was hardly a session of Congress in the next decade that did not see three or four of these State bills proposed. On February 2, 1869, a bill was introduced in the Senate "granting lands to aid in the reclamation of desert lands in the Territory of Utah." Cong. Globe (1869), 40th Cong., 3d sess., 781. Cf. also Cong. Globe (1871), 42d Cong., 2d sess., 47, 1965. In 1871, a similar bill was introduced to grant lands to aid in the construction of an irrigation canal in the Territories of Idaho and Utah. Cong. Globe (1871), 42d Cong., 2d sess., 120. February 1872 saw a bill introduced in the House and Senate providing for irrigation of lands lying between the Boise and Snake Rivers in Idaho Territory. Cong. Globe (1872), 42d Cong., 2d sess., 973, 1129.

⁹ Cong. Globe (1868), 40th Cong., 2d sess., 2379.

and commercial capacities of the public lands." A general interest was awakening, evidenced by innumerable recommendations submitted for treating desert lands and interrupted at intervals by definite proposals for general irrigation.¹⁰

In 1873 as a result of this awakened interest the Hon. George P. Marsh, then United States Minister to Italy, prepared a paper at the request of the Commissioner of the Department of Agriculture on the subject of irrigation, wherein he proceeded to "point out the evils and difficulties of the practice of irrigation, and to suggest precautions against the occurrence of these evils, and means of palliating them where they are to some extent inevitable."¹¹

Despite the fact that the moral, social, legal, sanitary, physical and economic obstacles toward which attention was directed might have been considered well-nigh insurmountable and capable of preventing the achievement of any tangible benefits, Mr. Marsh was able to reach the conclusion that irrigation could be extended in the United States with great economic advantage and that "nearly all the evils which ordinarily attend the practice may be avoided, or at least greatly mitigated."¹² The definite proposals which he made to realize this result were of such keenness and sagacity that one may well perceive that in the brief compass of this paper there were found both a guide and stimulus for future action regarding irrigation in the United States, and also the arguments which both the supporters and defenders of the movement used throughout the succeeding period. Here may be found a genuine premonition of all future irrigation policies.

Hasty action he considered inadvisable, and his purpose in pointing out the difficulties was first to inculcate the necessity of caution in attempting what might become "a great and general revolution in our agricultural methods," but "by no

¹⁰ On December 15, 1873 a bill was introduced for the development and irrigation of the Western plains. Cong. Record (1873), 43d Cong., 1st sess., 207.

¹¹ S. Mis. Doc. No. 55, 43d Cong., 1st sess., 4.

¹² Ibid., p. 22.

means to discourage careful study of the subject or judicious experiment in appropriate localities.”¹³ “There is,” he observed, “some danger that, with our characteristic impetuosity and love of novelty, we shall, especially in the comparatively rainless new States and Territories of our vast empire, engage too largely and too inconsiderately in an agricultural process which, in many cases, may be attended with disadvantages more than sufficient to counterbalance the gains from its adoption.”¹⁴ But recognizing this, he perceived a need for the general and local governments to pay greater attention to these problems which were certain to be national issues in the future. In proposing a definite recommendation, he saw that:

In the general unfamiliarity of our people with this important subject, we must look to our rulers, both for information on its practical and economical aspects, and for such legislation as shall prevent the greatest amount of evil and secure the greatest amount of good from the introduction of a system so new to us, and which, like all attempts to appropriate to the use of individuals gifts of nature which have long been common to us all, must clash with many rooted prejudices, many established customs, and many supposed feasible rights.

Government ought, then, to take steps for collecting and diffusing the existing knowledge on this subject, and where that knowledge is deficient, to supplement it by encouraging and aiding experiment, and by special inquiry into the physical condition and capabilities, the wants and the means of all our territory where the direct natural supply of water from the heavens is insufficient in quantity, or too irregular in distribution, to satisfy the needs of cultivated vegetation.

Much of the practical information needed may be gathered from European experience, and from the study of the methods now employed in those exceptional parts of our territory where irrigation has long been practiced. . . . Private experiment in favorable localities may, and doubtless will, do much to throw light on this subject, but the knowledge thus gained will be too local and too special to be of much general value, and we need some easily accessible preliminary source of instruction to serve as a guide and a safeguard to private enterprise. This can scarcely be furnished, except by either the Federal or State governments. . . . But what seems to be specially wanted is a series of brief reports of experiments deliberately made by persons of known competence, under Government patronage or sanction, in each geographical section of our country having marked peculiarities of climate, soil, and adaptability to special culture.¹⁵

¹³ *Ibid.*, p. 12.

¹⁴ *Ibid.*, pp. 3-4.

¹⁵ *Ibid.*, p. 15.

In such a way, the numerous minute inquiries into the irrigation systems of this and other countries and the ceaseless endeavors to increase the existing store of knowledge on the subject, which were to follow for the next quarter of a century, were definitely anticipated in 1873 by Mr. Marsh. In a similarly lucid way, he strongly advocated a systematic pursuance of hydrographical surveys of all the territory which might require or admit of irrigation for agricultural purposes; for such a survey he considered "an indispensable basis for all sound legislation on the subject."¹⁶

And again he saw a distinct advantage in Government ownership and administration of irrigation works, and advanced an argument which, it will be seen, constantly recurred as the movement for national irrigation acquired increased momentum. In this connection he stated:

Such works will seldom be properly and securely constructed by private persons or bodies, and the management of them by individuals, and especially by corporations, will always be liable to abuse and gross corruption. No irrigation-works, in fact, except for the distribution of water over private grounds, after it has once been withdrawn, under Government supervision, from Government sources of supply, ought to be intrusted to private hands. There are, no doubt, serious objections to the assumption of such burdens and such responsibilities by republican governments, but there are also graver and, as I think, insuperable objections to any other system.¹⁷

Recognizing that even financially such an undertaking may be profitable, he pointed out—and here he forecast a belief that gained in emphasis through the years—that the financial profits of such works are not alone the matters of consideration. "The vastly-increased production from irrigated lands, by enriching individuals and promoting the general prosperity, furnishes a greatly-enlarged base for taxation, and in this, as in most other cases, the best and securest revenue of a State is that which goes to fill the pockets of its citizens."¹⁸ It is apparent that many of the outlines of what reclamation was ultimately to be were here substantially blocked out. The rudiments of effective organization upon which the future development was to be made were present; and it is evident

¹⁶ *Ibid.*, p. 16.¹⁷ *Ibid.*, p. 17.¹⁸ *Ibid.*

that although only a small fraction of the content had yet been entered or conceived, most of the framework was there. The suggestions of Mr. Marsh seemed to be in sympathy with the current opinion of the day, and fitted in with the immediate plans of Congress; for around the nucleus which he left, a rapid succession of authorized inquiries and reports were formed.

From this time on, the history of irrigation legislation falls into three periods, during each of which a different "climate" or current of opinion was predominant, and in the main governed the development of the irrigation law of the United States. These are: (1) the Period of Development by Private Enterprise; (2) the Period of State Control; and (3) the Period of Federal Reclamation. While these periods can be clearly defined, there are yet numerous instances of incidental legislation running through the time, which so closely bind together whatever divergence of opinion there may have been, as to cause the whole to be considered a normal evolution, and the final stage only an anticipated culmination of the movement which started in the first period.

I. The Period of Development by Private Enterprise

On the third of March, 1873, Congress had passed an act authorizing a commission to report a system of irrigation for certain valleys in California.¹⁹ The report²⁰ was submitted in March, 1874 and contained not only an account of a minute inquiry in the region mentioned, recommending irrigation in that part of the United States west of the one-hundredth meridian (and more especially in the valleys of California), but also a section on the history, description and statistics of irrigation in foreign countries. As a result of the recommendations included in this report, one of the investigators was instructed in 1875 to inquire into the methods employed in irrigating land in foreign countries. This brought forth

¹⁹ U. S. Stat. at Large XVII, 622-623.

²⁰ H. Ex. Doc. No. 290, 43d Cong., 1st sess.

a detailed account ²¹ of the irrigation systems in use in India, Egypt, and Holland, with definite recommendations for the application of these findings to the problems of irrigation and marsh-reclamation in the United States.

But the demand was becoming urgent that Congress take some action regarding desert lands. The continued delay was aggravating and called forth more and more vehement demands as the time of inaction lengthened. Accordingly a bill providing for the sale of desert lands in California ²² was voted upon favorably in February 1875.²³ The object of the act was to reclaim desert lands by providing that one person should reclaim within two years not more than one section of land; having made satisfactory proof of such reclamation he should acquire title to the land on payment of the minimum price of \$1.25 per acre. The bill was regarded as an experiment, but an experiment which would justify trial, since these lands were then considered so worthless as not to warrant the expense of even a government survey. Even so the act was regarded, by those who were themselves convinced as to the value of irrigation, as a means of convincing others by an actual experiment. The passing of this bill, and the general encouragement it offered to the cause at hand, tended to hasten the climactic action of the period.

²¹ S. Ex. Doc. No. 94, 44th Cong., 1st sess. Irrigation had been used for thousands of years in all of these countries, and in Egypt, for example, it has been continuously applied throughout its historic existence. Before introducing irrigation into the United States it was considered essential to inquire into the circumstances of its existence in these other countries, in order to ascertain the proper principles of construction and of administration as they appeared to have been established by the experience of other nations. In India, where the Ganges Canal offered "the unrivaled instance of modern times," were found the "most conspicuous examples of irrigation on a grand scale, and it is here more than anywhere else in the world that a great systematic scheme is in progress of development." In both Egypt and India, irrigation was found to be the "very condition of existence both of the government and of the people"; and for this reason it was decided that the "constructions are of the most permanent character and of a much more expensive kind than we would be likely to adopt in the western plains." See H. Doc. No. 290, 43 Cong., 1st sess., 40 ff.

²² The bill applied only to Lassen County, California.

²³ U. S. Stat. at Large XVIII, 497. See also Cong. Record 43d Cong., 2d sess., 1786-1787.

Since such an act as that of 1875 could not satisfy the demands of the other arid states, but could serve, in fact, only to give new impulse to the demand for an all-inclusive law, the first Desert Land Act, which applied to eleven states and territories, was passed in 1877.²⁴ It provided for the sale of a section of land, at the price of \$1.25 an acre, to any person who would irrigate it within three years. This act, as an expression of a *Laissez-Faire* policy,—as all previous public land measures had been, in comparison to those which were to follow,—is a response to those biased in favor of individualism who felt that irrigation, though necessary, should be left to private enterprise. The Senate committee in a favorable report on the bill said: “Your committee believe that the whole subject should be left, as far as practicable, to private enterprise, and that the Government should interfere as little as possible with the subject. . . It is certainly best to give the people an opportunity in the first instance, and when they have failed to utilize both the water and the land it is time enough to call for Government aid or legislative control. . . .”²⁵ This sentiment had prevailed and was to continue for many years; and, although irrigation endeavors were not so successful as it had been hoped they would be, the potential success of the act was sufficient to stave off any legislation which might fundamentally alter the underlying purpose.

An area of land to the extent of a section, as provided under this act, was declared necessary to a settler at this time to pay him for casting his lot in a country that could itself offer so few advantages, and to which he would be contributing everything. The undeveloped land, being worthless without water, would add infinitely to the national wealth when private individuals had expended their labor to bring water upon it. President Grant recognized this fact when he urged the amendment of the laws applying to the public domain in the arid regions, in his seventh Annual Message to Congress on December 7, 1875. He said in this connection: “Land must

²⁴ U. S. Stat. at Large XIX, 377.

²⁵ S. Rept. No. 642, 44th Cong., 2d sess., 1.

be held in larger quantities to justify the expense of conducting water upon it to make it fruitful or to justify utilizing it as pasturage.”²⁶ It was found, however, that a section was too large for irrigation development, and at the same time too small for grazing use; and since extensive speculation was possible under the existing terms, the Act of 1890²⁷ was passed modifying the previous measure and reducing the area to three hundred and twenty acres as the amount to which each settler was entitled. In 1891,²⁸ the law was again revised to enable the settlers to form themselves into associations for the purpose of irrigating their land.

Inquiries and investigations continued in spite of the supposed all-inclusiveness of the Desert Land Act; and in 1878 Major John Wesley Powell’s “Report on the Lands of the Arid Region of the United States” appeared.²⁹ This report, written by a foremost figure in the irrigation history of the period, and one who was to be later credited by an appreciative writer³⁰ as the prophet and father of all ensuing reclamation work, is perhaps more frequently referred to than any other single survey study of the time. The scientific study of the arid lands of our Western domain in relation to human industries practically began, it is said, with Major Powell, and it was owing to his efforts that the need for action on a larger scale was first prominently set before the public.

Along with the Desert Land Acts, which embodied in the main the chief expressions of those whose convictions led them to believe that private enterprise alone should undertake irrigation, there was during the period a considerable body of those measures which might be termed “incidental” legislation. Although some of these activities departed from the *Laissez-Faire* idea in their immediate action, it was believed that only through the measures proposed would private enterprise be stimulated to independent action. For a number of

²⁶ Cong. Rec. (1876), 44th Cong., 2d sess., 32.

²⁷ U. S. Stat. at Large XXVI, 391.

²⁸ *Ibid.*, p. 1096.

²⁹ H. Misc. Doc. No. 45, part 4, 47th Cong., 2d sess.

³⁰ See George Wharton James, *Reclaiming the Arid West*, ch. ii.

years the possibility of sinking artesian wells on the plains east of the Rocky Mountains to supply water to the surrounding land was earnestly proposed and discussed.³¹ Indeed, by many, this was thought to be the only feasible way to obtain water.³² One of the first of the bills to give voice to such a plan and to receive serious consideration in Congress was introduced by Senator Hill of Colorado, in December 1879.³³ It provided for an appropriation of \$50,000³⁴ for boring artesian wells, and voiced the opinion that little would ever be realized by the Government from the sale of those lands until it had been demonstrated that fertility could be supplied by free flowing water. The bill was clearly recognized by the committee on Public Lands as an experiment but "an experiment in the right direction," and therefore worthy of favorable consideration. After summary debate in the Senate the bill was passed,—only to be referred to the House, where it was laid on the table³⁵ and given no further consideration. In subsequent years innumerable bills were offered to undertake or encourage experimental borings, but no definite action was attempted except to provide for further investigations.³⁶

The desire for artesian wells, having received little or no official sanction, was superseded by a pressure for the building of reservoirs throughout the arid region in order to conserve the limited water supply. With this interest came new demands for surveys; and investigations were immediately increased for the needs of conservation. In response to this sentiment, a Senate resolution was prepared in 1886, requesting from the Department of Agriculture information and a

³¹ See Cong. Globe, 42d Cong., 2d sess., 971 for introduction of a bill to encourage sinking artesian wells on public land in Nevada; and *Ibid.*, p. 1920 for a discussion in the House on the need of sinking artesian wells for irrigation in Nevada.

³² *Ibid.*, p. 1920, especially Mr. Kendall's remarks.

³³ Cong. Record (1880), 46th Cong., 2d sess., 30; and Sen. Rept. No. 250, 46th Cong., 2d sess.

³⁴ This was reduced to \$20,000 during the debate in the Senate. Cong. Record (1880), 46th Cong., 2 sess., 1471 ff.

³⁵ *Ibid.*, p. 4215.

³⁶ Cong. Record, 48th Cong., 1st sess., 95, 166, for bill proposing artesian wells for Nevada; for Kansas, *Ibid.*, pp. 77, 859; for Arizona, *Ibid.*, p. 121; for New Mexico, *Ibid.*, pp. 122, 541.

report on the progress and present conditions of irrigation in the country. This report,³⁷ prepared by Richard J. Hinton and entitled "Irrigation in the United States," is a comprehensive analysis of the state of irrigation in 1886. In this study the urgency of saving the water that yearly runs to "waste" in all parts of the arid region was realized, but seen to be a need more imperative in the Intra Mountain section than either the Plains region or the Pacific Coast Division. In considering the first of these as the truly arid region, Mr. Hinton said: "Arid and desert as this stupendous mountain system may seem to be, it will be found on examination to have large sections capable of agricultural uses, and also to hold within its borders such sources and supplies of water as, properly conserved, protected, and distributed, under the wise and conservative direction of the national and State Governments, will be found of ample utility for the purposes (1) of larger pastoral uses; (2) of more limited and localized, but still extensive, agricultural purposes; and (3) as storage and reservoir sources, from which at no distant day the life-giving waters may be conveyed to and distributed over vast areas, which even our present limited experiences prove to be convertible into fertile farms."³⁸

In building reservoirs in the arid region a double need was to be served, for, in addition to conservation there was a need for flood control along the Mississippi. This, it was perceived, could be accomplished by bridling the tributary headwaters of the larger arteries in adequate storage works. The Secretary of the Interior expressed this double purpose in a

³⁷ S. Mis. Doc. No. 15, 49th Cong., 2d sess.

³⁸ *Ibid.*, p. 7. In addition, in an effort to learn the practical results of irrigation, the author of this report made an inquiry into the principal irrigation works of the various states as to the cost and construction of the works and the land irrigated. To effect this, inquiries were addressed to "all persons known or understood to be acquainted with or interested in the subject matter" of the investigation. Mr. Hinton as a disciple of an honored master quoted at length from the paper of Mr. George P. Marsh. In considering the influence the Hinton report was to have for years to come, this fact would seem to give just cause to the belief that Mr. Marsh is to be considered the torchbearer of a long continuing line of visionary, but not impractical, idealists.

communication directed to the Senate on April 3, 1888 by stating:

It is believed to be possible, by an undertaking on a scale of adequate grandeur, to seize the waters of the Missouri at a proper distance from its source and the springs of its tributaries, and not only to apply them to the reclamation of arid lands in the upper region, but thereby also to benefit the agricultural territories adjacent to its lower currents, and even to mitigate the severity of the effects of the floods of the Mississippi upon the agricultural lands of its borders. Or some lesser river may be restrained of its natural flow and its waters applied only to the advantage of the desert wastes lying in the particular valley through which it runs.³⁹

Major Powell, then Director of the Geological Survey, directing a specially authorized Irrigation Survey, wrote in a similar strain: "The utilization of the extra-seasonal water of perennial streams can be effected only by the aid of storage reservoirs, and it will be found economic to construct such in great numbers throughout the region, and the acreage of farming land will be vastly increased thereby."⁴⁰ In like tenor he continued:

The development of the agriculture of the arid region is of national importance in itself. From the fact that the area in which irrigation is necessary is so great, the total area to be irrigated will be great; again, the gold and silver product of the region will increase when mining ceases to be handicapped by expensive subsistence.

The development of irrigation along the base of the Rocky Mountains is of double importance because of its influence on the agriculture of the Lower Mississippi. To store up the water of the Missouri and its main affluents for the purpose of irrigation is to diminish the volume of that flood of the Lower Mississippi which is most destructive by reasons of its occurring in the heart of the farming season. . . . For every acre reclaimed to agriculture in Montana another acre will be reclaimed in Louisiana; and, in general, all lands redeemed by irrigation on the Great Plains will be equaled by the lands redeemed from floods in the great valley of the Lower Mississippi.⁴¹

These statements, occasioned by a Senate resolution of February 1888 directing the Secretary of the Interior to state whether in his opinion it was desirable to authorize the Geological Survey "to segregate lands of the public domain capable of irrigation, in the sections of the United States

³⁹ S. Ex. Doc. No. 134, 50th Cong., 1st sess., 2.

⁴⁰ *Ibid.*, p. 4.

⁴¹ *Ibid.*, p. 6.

where irrigation is required, from other lands, and to lay out suitable places to be reserved for reservoirs and rights of way for ditches and canals for the purposes of irrigation,"⁴² show what an untinctured belief in irrigation was held by the administrative heads of the several bureaus to whom investigations were entrusted. The immediate action recommended gave strength to the argument for an appropriation of \$250,000 which was added to the year's civil appropriation bill, and after prolonged debate was approved.⁴³

In February, 1889, a Senate resolution authorized the appointment of a select committee of seven Senators, known as the Select Committee on Irrigation and Reclamation of Arid Lands, whose duty it was to consider the subject of irrigation and the best mode of reclaiming the arid lands of the United States. In 1890, this committee submitted a comprehensive report on a bill⁴⁴ providing for the creation, with the consent of the States or Territories involved, of Natural Irrigation Districts of three classes throughout the arid region, to be supervised by a board of irrigation commissioners, an irrigation court, and district superintendents of irrigation, forestry, and pasturage. This report gave in detailed form the information and testimony compiled during the Committee's survey of the western field.⁴⁵ The activities and report of this committee, and other groups actively engaged in western surveys, had large influence in educating the public to the importance of irrigation.

Numerous petitions, bills, and resolutions stimulated by the surveys which were being conducted, were submitted, pro-

⁴² Cong. Record (1888), 50th Cong., 1st sess., 1137.

⁴³ *Ibid.*, p. 7012.

⁴⁴ S. 2401, 51st Cong., 1st sess. Of the three types of districts into which the irrigable regions were to be divided according to their proximity to the available water supply, those of the first class were called headwater districts, the districts of the second class, river-trunk districts and those of the third class, lost stream districts. The bill, in keeping with the individualism of the time, was careful to specify that the administration of the districts was to be in the hands of local self-governing bodies and that the general government was to interfere in these matters to the least possible extent.

⁴⁵ S. Rept. No. 928, 51st Cong., 1st sess.

posing to afford immediate use of the findings then made. However, in this period none, except the ones providing for further investigations, ever progressed far beyond the Committee on Public Lands, or other committees to which they were originally referred. Nevertheless, these investigations provided valuable information for the legislation which was to follow, since the topographical, geographical, and hydrographical surveys made by the various division experts contributed to the previous scanty knowledge of the arid lands. While such measures as these demanded federal participation in irrigation interest, the participation was to last only until the work had been proved and the movement set under way, when private enterprise, lured on by the possibilities of the gains therein, would then take up the work. In contrast to these proposals were those which urged federal aid and continued supervision, believing that the national Government was the only agency which could profitably and efficiently undertake a work of so great a national importance. The need for change was being realized; for private enterprise had failed to exhibit the competent and adequate medium for development that had been hoped for in the original plan. Those who desired it to be a national activity, attempted at this time to pass a bill in Congress to make it so; but were defeated in their efforts by the intervention of the range interests. The sentiment of the times was not yet ripe for such a far-seeing policy, and a period of State cooperation in irrigation intervened.

II. *The Period of State Control*

Congress was forced to consider practical means for securing the reclamation of the arid lands, to quiet the insistent demands of the West and to prevent the accumulation of lands in large holdings by corporations and individuals; it could not long remain inactive under the pressure that was being exerted. The "progress of the age, the growth and dignity of our country, and the wants of our people" demanded that the arid lands should remain no longer in their "unproductive

condition." There were those who urged irrigation by the General Government. Others held that Congress should aid in the reclamation of the arid lands by loaning its credit to the States and Territories. Still others proposed that the States themselves have charge of the irrigation of the arid lands within their borders after having been granted these by cession from the Federal Government. To the group securing the strongest following the prize would fall in this three-cornered contest.

A committee reviewing and reporting on the immediate status of opinion resulting from this bewildering clamor gave their referee's decision as follows:

Sundry bills, resolutions, memorials, and petitions have been referred to this committee during the present Congress relating to the subject of irrigation and the proper disposition of arid lands, the general trend of which has been favorable to the proposition of relegating these lands and the problems involved to State and Territorial control and administration. The greater number of them has been of a general character, while others have been of local application, but all have been marked with the same distinct feature and uniform object, discovering a noticeable concurrence of opinion upon a subject-matter of vast public importance.⁴⁶

This idea of State superintendence of irrigation was prevalent because it was thought the States could do the work more efficiently than any other organization and because the leaders of the movement despaired of ever interesting the Federal Government in organizing and undertaking any system of reclamation. It was noted in 1892 that the people of the arid States and Territories, recognizing the prevailing sentiment for the need for irrigation, and "realizing fully all the difficulties which encompass the situation, have reached the conclusion that the General Government will never do this work."⁴⁷

Governor Toole of Montana in his message to the State Legislature for 1891 abandoned all hope for Federal supervision of this undertaking, saying:

There was a time when it seemed not improbable that the General

⁴⁶ H. Rept. No. 569, 52d Cong., 1st sess., 1.

⁴⁷ *Ibid.*, p. 3.

Government would take hold of this proposition, and under its supervision control and manage the water supply to the advantage of all. It is perfectly apparent, however, at this time (January, 1891) that influences are coöperating which will eventuate in destroying whatever hope we may have had in that direction. Eastern communities, which have set this opposition in motion, appear to be mindful only of local interests, and not of the prosperity of the whole country. Their protest is based upon the claim that the reclamation of these arid lands would subject the settler in the Eastern and Middle States to undue competition, retarding relief from agricultural depression. . . . The homes which we propose to make are not for us alone, but for every citizen of the United States who has the courage to come and take one. If we are to receive any substantial or speedy benefits from our arid lands, I believe the State must first acquire a title to them, and then undertake by appropriate legislation to reclaim and dispose of them. The Government should select, survey, and convey these lands to the State upon such conditions as would secure their occupation and reclamation.⁴⁸

Enthusiastic estimates had been made from time to time regarding the almost unlimited possibilities in the western States. The total area capable of irrigation was variously stated at from 100,000,000 to 600,000,000 acres. All this, it was declared, would be "appreciated beyond computation by processes of irrigation." Since private enterprise was not efficient or capable of promoting rapid development, and since the United States government would not, seemingly, lend its efforts to the needed work, the only agency left was the State. Opinion, as it was presented to the leaders in Congress, seemed to be in unanimous agreement favoring cession. The committee reviewing the situation expressed it as follows:

The western people, almost with one accord, have united in asking this cession; they have signified their purpose and desire through legislative memorials; through the expression of large and representative conventions; through the resolutions of the great irrigation congress held at Salt Lake City, in last September, composed of delegates from ten States and two Territories, and through numerous petitions from different parts of the country. That they are in earnest about the matter there seems to be no room for doubt.⁴⁹

For several years various groups representing from fifteen to twenty States and Territories had met as congresses and conventions in western and southern cities to plan programs

⁴⁸ Quoted by Senator Warren in Cong. Record (1892), 52d Cong., 1st sess., 6500.

⁴⁹ H. Rept. No. 569, 52d Cong., 1st sess., 5.

which invariably involved the irrigation problem. These probably as much as any single element of influence were responsible for the energizing force of leadership and opinion necessary to drive the government into action. One of the earliest, known as "The Western Commercial Congress" met at Kansas City. Among the resolutions adopted was the following: "Resolved, That it is the sense of this congress that the General Government should cede its arid lands, under proper conditions, to the various States within whose boundaries such lands are situated."⁵⁰ Another body, known as the Transmississippi Commercial Congress, met yearly in some city west of the Mississippi River. At a meeting in Galveston, Texas, in February 1891 they resolved in favor of the reclamation of the western arid region by the National Government "through a system of water storage reservoirs and artesian wells." However, at Denver in May of the same year another session of this same congress adopted the following resolution after full discussion: "Resolved, That it is the sense of this congress that the General Government should, under proper restrictions, cede to the several States and Territories of the arid region the public lands within their borders, excepting such lands as are more valuable for mining than agricultural purposes. . . ."⁵¹

The Salt Lake City congress, heretofore referred to, was that of a convention of approximately five thousand delegates from the arid land states, who met for the first time as the National Irrigation Congress in September 1891 and resolved in favor of ceding all the remaining public lands to the several States and Territories within which they were situated. The resolutions passed by this convention included the following: "Resolved, That this Congress is in favor of granting in trust, upon such conditions as shall serve the public interest, to the States and Territories needful of irrigation, all lands now a part of the public domain within such States and Territories, excepting mineral lands, for the purpose of

⁵⁰ Cong. Record (1892), 52d Cong., 1st sess., 6501.

⁵¹ Ibid.

developing irrigation, to render the lands now arid, fertile and capable of supporting a population.”⁵² Numerous state irrigation conventions meeting at this time⁵³ reaffirmed and adopted the Salt Lake City program, and the substance of this resolution on irrigation was adopted in 1892 as a plank of the National Republican platform.

The Commissioner of the General Land Office expressed similar views, and in the light of these the House Committee in 1892 reported favorably on a bill intended to carry out these measures, stating:

After a careful review of the whole question, we have arrived at the conclusion that the General Government will be benefited—that it will gain rather than lose by the speedy reclamation of and settlement upon these lands; that it will gain in the acquisition and increase of a strong and self-supporting western population; that it will be benefited in the opportunity that will be afforded for an outlet for its present and prospective millions of landless and homeless people, who now crowd, and will in future overflow, its dense and more populous Eastern States; that additions to popular well-being and prosperity will ensue. . . . We have been forcibly impressed with the conviction that suitable legislation upon this subject is imperatively demanded and can not well be longer postponed. Our conclusion is that the only solution of the question will be found in ceding these lands to the States and Territories. That this policy will ultimately prevail we confidently predict.⁵⁴

Yet in spite of the evident unified organization that was behind this movement, a successful bill was not to be presented until two years later. From his first appearance in

⁵² Cong. Record (1892), 52d Cong., 1st sess., 5133. The second convention of this group was held at Los Angeles, in October, 1893. This, in common with the subsequent congresses which from then on met annually in western cities, advocated greater national supervision and construction of irrigation works. In 1899, with members of the manufacturing, jobbing and transportation interests of the country as well as labor associations joining forces, a permanent form of organization was affected which accepted willingly the responsibility for spreading information and arousing public opinion to their cause.

⁵³ The State conventions of Nevada, New Mexico and Colorado, as well as the National Irrigation Congress, declared themselves in the manner. The Montana State Irrigation Convention advocated a different plan, but recognized the importance of early action by the Government. It was the sentiment of this group that it was the duty of the General Government to aid in the development of the arid lands and not to pass the title of the same to the States.

⁵⁴ H. Rept. No. 569, 52d Cong., 1st sess., 4-5.

Congress, Mr. Joseph M. Carey, then delegate from the Territory of Wyoming, proved a hearty sponsor for the Desert Land issue. Realizing the inadequacy of the existing laws, he introduced bills ⁵⁵ in the first sessions of both the 49th and 50th Congresses (1886 and 1887) to amend the Desert Land Act. In 1890 and thereafter his proposals took independent form, and a bill introduced in the 51st Congress provided for the "Segregation of the irrigable lands of the arid region, and for granting the same to the several States and Territories thereof." ⁵⁶ A bill of this intent was presented in each Congress thereafter by either Senator Carey or his colleague, Senator Warren, until in 1894 their perseverance was rewarded; for, on August 18 of that year, the principles which they had so heartily endorsed were enacted in a law which now bears the name of the Carey Act.⁵⁷

Although the act does not provide for direct cession of all the arid lands to States, it went far to effect a trial of the principles involved. It provided that "to aid the public land States in the reclamation of the desert lands therein, and the settlement, cultivation and sale thereof in small tracts to actual settlers," the United States would grant to ten States one million acres of desert land within each State, on condition that not more than 160 acres would be disposed of to any one person and that such land was to be used only for reclamation and settlement.

On March 3, 1901 ⁵⁸ Congress extended the terms of this law, which had been limited to ten years from the date of its original passage, so that it should remain in continuous operation, allowing ten years for the reclamation of each body of land segregated thereunder.

Although the Carey Act is yet in operation, it has not been,

⁵⁵ Cong. Record, 49th Cong., 1st sess., 1042. Ibid., 50th Cong., 1st sess., 363. Ibid., 50th Cong., 2d sess., 1760.

⁵⁶ Cong. Rec. (1890), 51st Cong., 1st sess., 7132. A bill of similar provisions and design was introduced by Senator Warren of Wyoming in 1891, Cong. Record, 51st Cong., 2d sess., 2721; and another in 1892, which he earnestly supported, Cong. Record, 52d Cong., 1st sess., 6485-6506.

⁵⁷ U. S. Stat. at Large XXVIII, 422.

⁵⁸ U. S. Stat. at Large XXXI, 1188.

nor is there now much chance that it will be, of outstanding importance. The States, especially the newly created commonwealths of the Western country, were in no position to assume responsibilities of the nature entailed by this act; and this fact, by crowding the succeeding period into earlier realization, automatically pushed the possibility of its widespread application even farther into the background.

III. *The Period of Federal Reclamation*

Although the concentrated opinion of the preceding era may have been correctly interpreted by the legislators of the day, yet in the light of what was to follow it would seem that this particular law and opinion entered more as a cross-current⁵⁹ than as a dominant element of influence for those who were urging the reclamation of the West. The Carey Act centered attention upon its own creed and policy for a time, and thus to a degree deflected the immediate thought away from Federal action. Yet this effect was seemingly only momentary, and instead of detracting from the urge for Federal undertaking, it gave increased impetus to the final movement. With comprehensive but ineffectual provision for individual and state effort in the reclamation of arid lands, it became evident that further action was required in order to utilize the large bodies of arid public land which remained unoccupied.

After the Carey Act had been in existence for five years, only one state—the home state of the two Senators who had sponsored it so effectively—had considered it wise to proceed to reclaim lands under it. The conditions and requirements

⁵⁹ Professor Dicey, using this term, states: "A cross-current of opinion may be described as any body of belief or sentiment which while strong enough ultimately to affect legislation, is yet in a measure independent of, though perhaps not directly opposed to, the dominant legislative creed of a particular era. These cross-currents arise often, if not always, from the peculiar position or prepossessions of particular classes . . . who look upon the world from their own special point of view. Such a cross-current differs from a counter-current in that it does not so much directly oppose the predominant opinion of a given time as deflect and modify its action." A. V. Dicey, *Law and Public Opinion in England*, 40.

under the Carey Act were so difficult and numerous that no state except Wyoming had deemed it to its advantage to undertake the reclamation of any land thereunder. The West was not satisfied. In the same Congress which passed the Carey Act, a bill for Government irrigation had been pending; and the reporting committee,⁶⁰ giving it favorable support, emphasized the great opportunity open for a prosperous development of a then unpeopled country. Yet this bill was not passed; nor were the many others of similar intent, introduced in the next seven years, given final approval until the successful measure of 1902 was signed.

However, with the continued delay valuable foundations were being laid for a fuller understanding of the problems involved. This undoubtedly accounts to some extent for the success of this period over those preceding, and the ultimate success of a movement which had originated at a much earlier time. The years of controversy allowed thorough discussion of the benefits and pitfalls which were likely to be experienced; and that difficulties have arisen is attributable, not to the fact that they were unforeseen, but that they were inevitable.

Since, as has been recently pointed out by an economic writer, one finds the economics of a given age "in the offices, on the streets, in union halls, in acts of legislatures and decisions of the courts."⁶¹ the opinions of any age are expressions of the economics of these and other "special interest" groups. The era nurturing irrigation was no exception to this. The political platforms of 1900 had advocated reclamation. Various government officials, including the Secretary of the Interior, the Commissioner of the General Land Office, and the Director of the Geological Survey, were sympathetic. Chambers of Commerce, labor organizations, western state legislatures, corporations, newspapermen and farmers seemed in one accord to regard irrigation as the paramount internal issue of the day.

⁶⁰ H. Rept. No. 1152, 53d Cong., 2d sess.

⁶¹ John M. Clark, "Recent Developments in Economics," 218, in *Recent Developments in the Social Sciences*. Lippincott's Sociological Series, 1927.

Sentiment and arguments as they had been developed thus proved both local and national, both individual and social, in scope. The statement was made more than once that "the object of irrigation is to provide homes for homebuilders." In contrast there was voiced, at other times in support of a measure, the feeling that since the arid states could never get any benefit from river and harbor appropriations it was therefore right to effect a compromise in which there should be a balancing of appropriations and hence a "reciprocal benefit."⁶²

It is of interest and some significance to examine the many arguments conceived by the councilors on Federal irrigation and intended thus to effect early realization of their desired end, together with the counter-arguments mustered by their adversaries; for it is these that should serve as precedent in analysis and criticism of succeeding activities and achievements. It is only by inquiring into the desires and motives actuating the early inaugurators of the movement that we may justly give estimate to the resulting good or evil of the present time.

Then, as now, home building was perhaps the most popular argument of reclamationists. The Government, in pursuance of a policy to permit the increase of homes on the public lands, had consistently practiced the alienation theory of "many homes, rather than large estates." The homestead law was devised to place the public domain more surely in the possession of actual cultivators of the soil. Grover Cleveland observed in his first annual message to Congress (December 8, 1885): "The nation's strength is in the people. The nation's prosperity is in their prosperity. . . . Hence, as far as practicable, the plan adopted in the disposal of the public lands should have in view the original policy, which encouraged many purchasers of these lands for homes and discouraged the massing of large areas."⁶³

⁶² Cong. Record, 57th Cong., 1st sess., 2276.

⁶³ Richardson, Messages and Papers of the Presidents, X, 4944. Cleveland repeated this thought in his second annual message (December 6, 1886), urging that this should be a matter of concern

Throughout the period bills were drawn,⁶⁴ reports made, petitions and memorials submitted proposing in various ways to "convert the desert into productive fields and pastures," "making homes for homeless people." But it was left for President Roosevelt, with his characteristic boldness and vigor, to compel action by Congress. He, perhaps more clearly than others, perceived the social significance of the measure, and declared: "Successful home-making is but another name for the upbuilding of the nation."⁶⁵ Further enlarging this thought, he stated: "Our aim should be not simply to reclaim the largest area of land and provide homes for the largest number of people, but to create for this new industry the best possible social and industrial conditions; and this requires that we not only understand the existing situation, but avail ourselves of the best experience of the time in the solution of its problems."⁶⁶

At the same time, a demand for additional homes was strengthened by the pressure of increasing population. That population was then increasing rapidly was a circumstance unnecessary of proof; that it would continue to increase at an even more rapid pace in the future was equally well accepted. A growth in population was wholesome, but adequate provision for livelihood must be made. It was remarked more than once "that this huge acreage, capable of sustaining under proper irrigation a population of at least 50,000,000,

in all public land disposition, by saying: "To secure the widest distribution of public lands in limited quantities among settlers for residence and cultivation, and thus make the greatest number of individual homes, was the primary object of the public-land legislation in the early days of the Republic." *Ibid.*, XI, 5106.

⁶⁴ Senator Clark of Wyoming in 1902, in support of the successful Federal reclamation measure (S. 3057) declared: "The principal object and purpose of this bill is to redeem the desert lands of our arid regions, give them life and vitality by the application of water, so that they may be made homes and permanent abiding places for the settler and his family. The theory is that the lands of the United States should be a trust estate, held for the benefit of the citizens, and so disposed of as to carry the greatest comfort and the maximum of happiness to the greatest number of people." *Cong. Rec.* (1902), 57th Cong., 1st sess., 2223.

⁶⁵ Richardson, *Messages and Papers of the Presidents*, XIV, 6658.

⁶⁶ *Ibid.*, XIV, 6660.

should remain practically a desert, is not in harmony with the progressive spirit of the age.”⁶⁷ Not only by tilling the soil was livelihood to be gained, but it was considered that in many instances the men who made homesteads upon the reclaimed lands could be employed as laborers or artisans upon the hydraulic works. Many would at first find employment in constructing the canals, dams and reservoirs necessary for the reclamation, which would tide them over the early years of pioneering and home building in the new communities.⁶⁸

Perhaps one of the most potentially effective arguments for irrigation, although one least developed, was an outgrowth of this last idea, emphasizing the possible influence the newly developed communities might have as what might be termed “experimental outposts.” Just as “trade follows the flag,” so settlement and prosperity follow irrigation in the arid region not alone by developing agriculture but by attendant activities that go to make up a community. In the debate in Congress on February 6, 1902 this was given expression when the remark was made: “Wherever irrigation has been successfully applied large communities have grown up. New mines have been opened in the adjacent mountains, manufactories have been established in the valleys, and railroads have been extended. Naturally these enterprises bring in large numbers of people.”⁶⁹

Certain advocates who cited these needs for rapid and immediate reclamation argued that in view of the past rate of agricultural development there was immediate danger of a shortage of good agricultural land. In an “Address to the People of the United States by the National Irrigation Congress” at their fourth Annual Session held in Albuquerque, New Mexico in 1895, it was stated:

In the process of stupendous material expansions which has marked the history of the century now drawing to its close the American people have occupied practically the last acre of public land in the region where the natural rainfall suffices for successful agriculture. Beyond that occupied domain lies the vast territory

⁶⁷ H. Rept. No. 2927, 56th Cong., 2d sess., 6.

⁶⁸ H. Rept. No. 1152, 53d Cong., 2d sess., 4.

⁶⁹ Cong. Record (1902), 57th Cong., 1st sess., 1385.

commonly known as the arid region. About 93 per cent. of the national population live east of the natural boundary which marks the western limitation of the region of assured rainfall. The fact is beyond dispute that the western half of the continent can readily sustain, upon a sound economic basis a population at least as large as the present total number of inhabitants of the United States.

In view of the startling growth of great cities during the last decade, and the continued tendency of the people to desert the land and mass themselves in the already overcrowded and congested centers, and in view of the idleness and unrest which have resulted largely from these causes, it seems plain to us that the time has come for the American people to claim and occupy their last remaining heritage of public lands.⁷⁰

Obviously, extensive development could not be undertaken by private enterprise, after the easily accessible water supply had first been appropriated by the pioneers. The areas far from the streams and rivers required, for reclamation, more capital and credit than was commonly possessed by the home-seeker. Frequently it was pointed out that while the pioneer "had merely to take out canals and diverting ditches and thus enjoy a priority of supply now guaranteed by custom and law," such opportunities had all been utilized; and the later comers found themselves confronted with a task enormously greater than that of their predecessors and far beyond their means. Roosevelt, seeing that these opportunities were gone, and with a specific scheme to advance, approvingly said: "There remain, however, vast areas of public land which can be made available for homestead settlement, but only by reservoirs and main-line canals impractical for private enterprise. These irrigation works should be built by the National Government. The lands reclaimed by them should be reserved by the Government for actual settlers, and the cost of construction should so far as possible be repaid by the land reclaimed."⁷¹

One argument which seemed to be more keenly appreciated than many others presented at this time was that of conservation. In addition to the work of homebuilding and providing productive agricultural lands for increasing millions, reclamation, it was found, could advance beneficially the only

⁷⁰ S. Doc. No. 253, 54th Cong., 1st sess., 1.

⁷¹ Richardson, Messages and Papers of the Presidents, XIV, 6658.

recently inspired efforts toward conservation. It was seen that if the land and water of the arid regions were properly utilized and economized, millions of waste acres would be transformed into fertile farms. The necessity of adequately providing for conservation had been recognized by President Harrison in his Second Annual Message to Congress in December, 1890.⁷²

But again, it was left for Roosevelt to see this as a constructive and workable project. Perceiving that forest conservation presented an urgent domestic problem and aided the prevention of destructive floods and soil wash, he announced:

The forests are natural reservoirs. By restraining the streams in flood and replenishing them in drought they make possible the use of waters otherwise wasted. . . . They prevent the soil from washing, and so protect the storage reservoirs from filling up with silt. Forest conservation is therefore an essential condition of water conservation.

The forests alone cannot, however, fully regulate and conserve the waters of the arid region. Great storage works are necessary to equalize the flow of streams and to save the flood waters. Their construction has been conclusively shown to be an undertaking too vast for private effort. Nor can it be best accomplished by the individual States acting alone. Far-reaching interstate problems are involved; and the resources of single States would often be inadequate. It is properly a national function, at least in some of its features.⁷³

⁷² Therein he stated: "The subject of the conservation and equal distribution of the water supply of the arid regions has had much attention from Congress but has not as yet been put upon a permanent and satisfactory basis." Richardson, Messages and Papers of the Presidents, 5561. In the Fourth Annual Session of the National Irrigation Congress (September 1895) it was demanded that there be an "extension of the policy of forest reservation, begun under the Administration of President Harrison and continued under that of President Cleveland." It was further stated: "We recognize that the forests are nature's storage reservoirs and are thus intimately related to the water supply on which the industrial life of the arid region must forever depend." S. Doc. No. 253, 54th Cong., 1st sess., 2.

⁷³ Richardson, Messages and Papers of the Presidents, XIV, 6657. In 1908, when Federal irrigation was well under way, a Conservation Commission was created. In the first report to the President, the following was mentioned as properly coming within its aim and scope: "Of the total area of our lands, but little more than two-fifths is in farms, and less than one-half of the farm area is improved and made a source of crop production. The area of cultivated land

The legislative houses of Congress were convinced of the soundness of this argument as one offering forceful support for reclamation, and a Senate Report stated:

From the experience already acquired in the development of the arid regions it may be assumed that where water is conserved for the direct reclamation of one acre there are ultimately brought in use two or three acres, through the possibility of taking advantage of floods, through the use of seepage, through pumping plants, and by various other devices. In short, if the Government, by means of large storage works, or by taking water from great rivers, should provide water directly for 20,000,000 acres which otherwise would not be irrigated, this act would render possible the gradual utilization of the greater part of the remainder through construction of smaller individual systems.⁷⁴

Prosperity of such a nature as would be achieved in one community by these various means,—homebuilding, conservation, provisions for growing population through increased agricultural acreages and new industries,—would eventually be diffused throughout the land, all sections partaking of its benefits. It was claimed that “by the reclamation of these lands great wealth will be added to the Union. That same wealth will supply taxes for the support of the State and National Governments and help to make this the greatest nation on the face of the earth.”⁷⁵ For “the people of the country, as personified by the Government, are the great land-owners. They, as a whole, are benefited by the disposal of the vacant lands, the settlement of the waste places, and the consequent increase of manufacturing and transportation. They can afford to disregard questions of immediate profit in favor of the ultimate settlement of the arid regions.”⁷⁶

may possibly be doubled. In addition to the land awaiting the plow 75,000,000 acres of swamp land can be reclaimed, 40,000,000 acres of desert land irrigated and millions of acres of brush and wooded land cleared. We must greatly increase our yield per acre. The average yield of wheat in the United States is less than fourteen bushels per acre; in England it is thirty-two bushels and in Germany twenty-eight. . . . Proper management will double the yield and produce more than three times our present population can consume.” Richardson, Messages and Papers of the Presidents; See “Conservation Commission,” Encyclopedic Index.

⁷⁴ S. Rept. No. 254, 57th Cong., 1st sess., Jan. 28, 1902, pp. 3-4.

⁷⁵ H. Rept. No. 1161, 55th Cong., 2d sess., 3.

⁷⁶ Cong. Record (1902), 57th Cong., 1st sess., 1385.

In spite of these several convincing arguments, other influences were operating adversely and opposing opinions were presented throughout the controversy that were so commanding and forceful as to cause it to appear at times that their proponents were the offensive contestants, and the true protagonists the defenders. Among these resisting ideas, the competition which the new sections would arouse with the older sections assumed first importance. Little could be said by the Westerners and their sympathisers to successfully dispel this fear. Southern products they considered, would not be affected; but only the hope that internal or Oriental markets would absorb the produce could be relied upon to reassure the Eastern agriculturists. A typical expression of the situation appeared as follows:

There has been in the past an apprehension that the reclamation of the arid public domain would bring the agricultural lands of the West into competition with those of the East. This fear has been due to ignorance of the fact that the products from irrigated lands are essentially different from those from humid lands, and do not reach the same market; but even if there should be competition along a few lines, this will not be injurious, if brought about by slow, systematic development contemplated through the arid-land reclamation fund.⁷⁷

Instead of a detrimental competition arising, it was seen that branch railway lines would precede the settler, that towns would spring up in advance of the ripening of the first crop and out of these activities would come a new demand for manufactured products. "This," it was said, "will make New England a party in interest. Pennsylvania and Ohio will secure a share of the new orders for steel. The South will find an additional market for her cotton and tobacco."⁷⁸ Roosevelt as an able expounder of the cause at hand refused to regard competition as an evil consequence of reclamation and his influence here did much to dispel its potentialities. He argued:

The reclamation and settlement of the arid lands will enrich every portion of our country, just as the settlement of the Ohio and

⁷⁷ S. Rept. No. 2308, 56th Cong., 2d sess., 6. Cf. H. Rept. No. 2927, 56th Cong., 2d sess., 4, for a similar statement.

⁷⁸ Cong. Record (1902), 57th Cong., 1st sess., 1383.

Mississippi valleys brought prosperity to the Atlantic States. The increased demand for manufactured articles will stimulate industrial production, while wider home markets and the trade of Asia will consume the larger food supplies and effectually prevent Western competition with Eastern agriculture. Indeed, the products of irrigation will be consumed chiefly in upbuilding local centers of mining and other industries, which would otherwise not come into existence at all.⁷⁹

The danger of over-production, too, proved a stumbling-block which, when it could not be passed over, was better gone around. The claim was made that with the addition of this vast area ⁸⁰ the market would be so flooded with the surplus agricultural commodities that the already depressed agricultural prices would be pushed even farther down. Not only would there be over-production of the commodities but there would be an ensuing over-supply of the lands on which the commodities were grown. The "Views of the Minority" ⁸¹ attached to a favorable committee report of a bill in 1901 suggested this sentiment, saying:

It must be conceded that if we add millions of acres of productive land to our possessions we shall thereby diminish the value of the present farming lands throughout the Union. It is said that, properly irrigated, millions of acres of arid lands in the Great West will be made as productive as the richest soils of our most favored States and made to 'blossom as the rose'. Are our present agricultural lands so overcrowded, so unproductive, that to accommodate or feed our increasing population we should expend millions of dollars from the Treasury of the United States to afford opportunity for greater agricultural production and consequent competition in the farming industry? We think not.⁸²

Only in debate of the final bill did the active supporters rally their forces with statistical evidence to refute this argument.⁸³ There, they presented testimony that, whereas recla-

⁷⁹ Richardson, Messages and Papers of the Presidents, XIV, 6658.

⁸⁰ The estimates in the discussions of this period were commonly placed at 20,000,000 acres.

⁸¹ The minority report was signed by the only two members of the committee representing communities east of the Mississippi River (Illinois and New York).

⁸² H. Rept. No. 2927, part 2, 56th Cong., 2d sess., 2.

⁸³ In contrast to the rapid agricultural development which was feared, the Director of the Geological Survey estimated that with the income provided, a period of thirty-eight years would be required in which to reclaim 20,000,000 acres, "so that reclamation would proceed at an average rate of about 526,000 acres a year for

mation would proceed at a very moderate rate, lands had been taken much more rapidly and in much greater amounts in the preceding ten years. Yet in company with this great expansion the prices of the principal farm products were seen to have "at least remained normal." In consequence of this it was assumed "that the rapid settlement of the public domain can not truthfully be said to have affected detrimentally the prices of farm products. Nor can it be maintained that the opening of a little more than half a million acres annually by means of irrigation would result in overproduction. On the contrary, it is the history of all irrigated sections that the output of bread foods from irrigated lands rarely meets the local requirements."⁸⁴

And again, the constitutionality of the measure had to be disposed of. It was declared that:

There is no greater reason for the Government of the United States to irrigate its arid and desert lands situated within a State than to fertilize its barren lands, take the stone from stony ground, plant forests where needed, etc. Should we do these things, the value of the lands would be increased undoubtedly and settlement thereon

thirty-eight years." The Congressmen were reminded that "While under the proposed irrigation system the average rate of settlement would not exceed 526,000 acres per annum, lands have been taken at the rate of from 8,000,000 to 15,000,000 acres a year without national irrigation." To support this the following figures, showing the area of the public lands disposed of from July 1, 1891 to June 30, 1901, were presented:

1892.....	13,566,552.55
1893.....	11,801,686.04
1894.....	10,377,224.72
1895.....	8,364,300.18
1896.....	13,174,070.68
1897.....	7,753,606.75
1898.....	8,421,703.73
1899.....	9,990,623.08
1900.....	13,391,464.97
1901.....	15,453,449.28
Total.....	112,294,681.88

Besides, during the same decade, with more than 112,000,000 acres added to the cultivated area of the country, the prices of certain basic farm products, as they were set forth, proved even higher than they had been in 1892. Cong. Rec. (1902), 57th Cong., 1st sess., 1384, 1385.

⁸⁴ Cong. Rec. (1902), 57th Cong., 1st sess., 1385.

stimulated, but it would be a substitution of public expenditure for private enterprise and expenditure where only private interests, mainly local, are to be subserved.⁸⁵

The anti-Reclamationists in the committee believed "the time has not come when the General Government is justified in making large outlays of public money belonging to the whole people for the benefit of a few, especially when the existing conditions are such that such expenditure would greatly injure a large class of our citizens engaged in a particular industry."⁸⁶

This fear of the unconstitutionality of the bill was easily over-ruled, however, by the 'General Welfare' clause of the constitution. Roosevelt, citing it, stated:

It is as right for the National Government to make the streams and rivers of the arid region useful by engineering works for water storage as to make useful the rivers and harbors of the humid region by engineering works of another kind. The storing of the floods in reservoirs at the headwaters of our rivers is but an enlargement of our present policy of river control, under which levees are built on the lower reaches of the same streams.⁸⁷

In ultimate consideration of the successful measure in the Senate, this matter bore little influence and was disposed of as follows:

To say that the National Government can not, within the Constitution, do its part in the development of the latent wealth that exists in a region that is nearly one-third of the total area of the United States is to discredit the genius of the American people. To say that we may not utilize the waste waters that pour down from the mountain heights, and by applying these waters to public lands that would otherwise be worthless make two blades of grass grow where none grew before, is to admit that national progress has reached the end and that we are henceforth doomed to slow decay.⁸⁸

Other opposing arguments were set forth, some holding that the measure smacked of paternalism, others, that it was a scheme not to promote the general welfare,⁸⁹ but to pro-

⁸⁵ H. Rept. No. 2927, part 2, 56th Cong., 2d sess., 2.

⁸⁶ Ibid.

⁸⁷ Richardson, XIV, 6657.

⁸⁸ Cong. Record (1902), 57th Cong., 1st sess., 1383.

⁸⁹ In this connection it was stated: "We can discover no way by which the 'general welfare' of the United States is to be conserved

mote local interests at the public expense and to the detriment of the general welfare.⁹⁰ Another considered that any effort to establish national irrigation would involve such enormous expenditures of money as to commit the Government to a burden which the Treasury could not easily bear. This cry was partially quieted with the presentation of the proposal, which was a part of all the later bills, of appropriating the proceeds from the sale of the public lands in the arid states and territories to the reclamation of the lands within their boundaries, thereby making no demands upon the public treasury and even providing that this fund should be repaid by the settlers.

One argument peculiarly prophetic was made at this time. Its exponents believed, in spite of the bill providing for the repayment to the Government of the cost of construction of irrigation works, that "if the bill were passed members of Congress from the districts and States interested would soon be clamoring for the relief of their constituents from these payments."⁹¹ The situation was too new, both in experiment and practice, to adequately prove or refute this speculation.

For most part these opposing arguments came from the East. Some few in the early years of the movement arose in the West, but before the final measure was realized there were

under the operation of the provisions of this bill in a pecuniary sense. The mere addition of more productive soil, more production, more population, more consumption, more sources of taxation, etc., in certain localities and within States to that we now have and enjoy will hardly be claimed to promote the general welfare or to constitute an object for which we may tax the whole people of the nation." H. Rept. No. 2927, part 2, 56th Cong., 2d sess., 6, 8, 9.

⁹⁰ For example, the Committee minority declared: "The land grant railroads are behind this scheme and the real beneficiaries. These roads run through these arid lands and semi-arid regions, and they own vast tracts of these lands. The construction of these irrigation works and reservoirs at the public expense will inure to their benefit, for it will bring their lands into the market at twenty times their present value. In our judgment the Congress of the United States will be false to its trust if it sanctions a scheme the benefits of which are largely, at least to be reaped by these railroad corporations." H. Rept. No. 794, part 2, 57th Cong., 1st sess., 5.

⁹¹ H. Rept. No. 1468, 57th Cong., 1st sess., 15. April 7, 1902 (Accompanying S. 3057).

probably no dissenting voices in the West; and the few in the East, if not thoroughly convinced, at least gracefully acquiesced to the inevitable. Thus it is seen that the arguments for and against reclamation were presented and met. Controversy was both heated and continuous. But, with the discussion, a constant maturing process was taking place which was reflected in final arguments and the bill presented.

From this it may be seen that the passage of the reclamation law was not the result of hasty movement or rapid conclusion, but the way for it had been paved through many years of discussion and through many experiments in law-making extending over a quarter century. Various acts of Congress had led up to the statute, and these had been put to the test, to demonstrate their strength or inefficiency. Consequently, the law as passed was in large degree the result of evolution, an evolution involving a continuous elaboration and refinement which has proceeded along the lines, first, of encouraging individual effort and leaving reclamation wholly to private enterprise; next, on finding this insufficient, of attempting to interest various arid states by the terms of the "Carey Act"; and finally of the passage of the national measure, urged by the people of the whole country.

The bill which definitely brought Federal Reclamation into being passed Congress with little opposition expressed in votes, and was signed by President Roosevelt June 17, 1902.⁹² The law provided that the money received from the sale of public lands in sixteen states should be set aside as the reclamation fund to be used for the construction of irrigation works in the arid regions, the money so expended to be repaid to this fund in ten annual installments by the settlers. This, as a revolving fund, should continue to be applied for irrigation under the direction of the Secretary of the Interior. It was further provided that each settler, claiming title to land on a reclamation project, was to comply with the provisions of the homestead law as to settlement, in addition to

⁹² U. S. Stat. at Large XXXII, part 1, 388.

the payment of his share in the construction cost of the project. No settler was entitled to a tract exceeding 160 acres.

It is with the passage of this measure that the experiment in federal homebuilding was launched, an experiment which was clearly outlined and urged in 1873 and which has continued to occupy a foremost place in legislative thought and action to the present day. Although, as is evidenced in the preceding pages, many arguments have urged reclamation, the one of homebuilding has from the first been more constantly uppermost and seemingly more sincerely represented. Accordingly, it is the United States Government's progress as a federal homemaker which will be the subject of the succeeding chapters.

CHAPTER II

PROGRESS UNDER THE FEDERAL RECLAMATION LAW

Every law should rest upon some general principle and should commend this principle to public attention. The reclamation act was based upon arguments which emphasized the importance of homebuilding, conservation, and relief of congested population—matters chiefly of sociological significance—and made these the chief factors to which attention should be directed in critically adjudging the results and the future of reclamation endeavors. Among the considerations that molded opinion in favor of federal reclamation, these three seem to have received more approval than any of the other arguments advanced. The opportunities which the movement offered for homebuilding and conservation provided a visibly higher motive; and thus by even the most sectional advocates were readily adopted as the chief force which prompted support of the bill. Public spirited leaders gave abundantly of their approval, and local spokesmen could well afford to give whole-hearted ostensible support to a common cause when they were assured that local and sectional interests would receive concomitant benefit.

It was along these lines and impelled by these motives that the inception of the reclamation movement was molded. Guided by men distinguished alike for their integrity and ability, project undertakings and accomplished results were interpreted with the same reasons and arguments as those given when the bill was pending passage. For example, in 1903 F. H. Newell, then Chief Engineer of the Reclamation Service under the Geological Survey, wrote: "The object of the reclamation law is primarily to put the public domain into the hands of small land owners—men who live upon the land, support themselves, make prosperous homes, and become purchasers of the goods manufactured in the East and the

cotton raised in the South.”¹ In 1910 he wrote in a similar strain, showing an unswerving acceptance of the original thesis under which reclamation was conceived and under which he was operating: “The object of the reclamation act, as stated in the law is the construction of irrigation works for the reclamation of arid or semi-arid lands in the States and Territories named in the act. But the purpose behind the mere reclamation of the land is the providing of opportunities for homes for an independent self-supporting citizenship.”² And again, in 1919, C. A. Bissell as Reclamation Engineer stated:

The full importance of national irrigation can not be measured in dollars and cents. In the building of new Commonwealths in the arid West the Government is utilizing largely its own undeveloped resources. It is creating opportunities for its citizens to establish themselves in permanent homes in which patriotism, loyalty, and civic pride are bred and fostered. The primary purpose of the Reclamation Act was to create homes, and this purpose has been fulfilled richly and abundantly. Viewed from this standpoint, no one can deny that national reclamation has amply justified all its exponents declared for it.³

On the other hand, the critics of reclamation took a different turn in their analysis. Instead of viewing all work carried on by the Reclamation Service as a means for the “preservation and perpetuation of the home,” the censors of the operations, observing its immediate uneconomic results, leveled their criticism on this phase of the work.

To interpret the cause of the vehement criticism, it is appropriate to first inquire into the organization and activities effected under the Reclamation Law to discover the extent to which the promises and plans of the lawmakers have been fulfilled. From this may be forthcoming a more just and

¹ Annual Report of the Smithsonian Institution, 1903—F. H. Newell, “The Reclamation of the West,” 828.

² Annual Report of the Smithsonian Institution, 1910—F. H. Newell, “Progress in Reclamation of Arid Lands in the Western United States,” 170.

³ Annual Report of the Smithsonian Institution, 1919—C. A. Bissell, “Progress in National Land Reclamation in the United States,” 497.

impartial analysis of the true status and scope of the activities and duties of the Federal Government as a homebuilder.⁴

The plans of operation under the reclamation law made expedient the creation of the Reclamation Service (now the Bureau of Reclamation) and provided it with a corps of engineers and professional men constituted to carry out the purposes of the law. For convenience of administration the Reclamation Service was first made a division in the hydrographic branch of the Geological Survey, with Dr. F. H. Newell as chief engineer of the Service. It was separated from the Geological Survey in March 1907 and made directly responsible to the Secretary of the Interior. Dr. Newell was appointed the first Director at that time. During these and following years the Director, who maintained at all times a close personal contact with the Secretary of the Interior, was the sole advisor of the Service in all its activities and authorizations. This arrangement continued until December 1913 when a board known as the Reclamation Commission, consisting of the director, chief engineer, chief counsel, comptroller, and the supervisor of irrigation, was constituted for the purpose of considering all questions of administrative policy and management. In 1914, Arthur P. Davis became Director of the Service, and the offices of chief engineer and director were combined. At the same time, the office of chief of construction was created with representation on the board. The administrative control of the Service remained with the board so constituted until June 1915, when its personnel was reduced to three. It continued to function, however, until 1918. Since then, direct responsibility and supervision has been placed in the Director. Arthur P. Davis was replaced in 1923 by D. W. Davis; he was succeeded in May 1924 by Dr. Elwood Mead, the present Commissioner of Reclamation.

⁴ An excellent study of the history, activities and organization of the U. S. Reclamation Service is to be found in Service Monographs of the United States Government No. 2, prepared by the Institute for Government Research (1919). The work "The Economics of Land Reclamation in the United States" by R. P. Teele (A. W. Shaw Company, 1927) is also of interest in connection with some parts of the present chapter.

With the Service for more than twenty years under the guidance of men who had been trained and who had shown excellence in engineering science, it is to be expected that the problems encountered in that time should have been viewed and treated from an engineering standpoint. Again, it is normal, both from the logical operation of the work and from the statutory provisions of the act, that engineering should have been the important activity of the newly-formed Reclamation Service for the first years of its operation. Until diverting and storage structures had been built and water was ready to be delivered to the land, need or possibilities for further development could scarcely be foreseen; and in so far as the act specified that the reclamation fund should be "used in the examination and survey for and the construction and maintenance of irrigation works for the storage, diversion, and development of waters for the reclamation of arid and semi-arid land," no authorization could readily be found, as the needs developed, for advances of capital to needy settlers, or for further economic development which might be attempted. As has been noted recently by a student of the subject, "it was the intention of the Act that the Government should carry out only the main constructional works such as building the reservoirs and the main canals and that the subsidiary work, such as making the smaller canals and channels and preparing the land for cultivation, should be performed by the settlers."⁵

The same thought had been expressed in Congress on many different occasions until the belief became almost an axiom that "if the government provides the larger storage works and regulates the rivers it will then be possible for private enterprise to again take up the work of bringing water to the land."⁶

⁵ F. L. Tomlinson, "The Reclamation and Settlement of Land in the United States," in *International Review of Agricultural Economics*, April-June, 1926, 238.

⁶ S. Rept. No. 254, 57th Cong., 1st sess., Jan. 28, 1902, 3. In the H. Rept. No. 1468, 57th Cong., 1st sess., 9, we find "While the bill will, it is confidently expected, furnish a sufficient sum to construct the larger irrigation works required in the arid region, it is not

A large amount of preliminary work carried on by the Geological Survey, in a sense anticipating the passage of the reclamation law, was so contributory to engineering as to form a definite supplementary part of the succeeding activities. Indeed certain lands to be reclaimed in Montana, Arizona, and Colorado had, on the advice of the Geological Survey, previously been temporarily withdrawn from entry by order of the Secretary of the Interior. Operations were pushed forward energetically and widely, and within the first year of application of the Act, four projects, the Salt River Project in Arizona, the Milk River Project in Montana, the North Platte Project in Nebraska-Wyoming and the Newlands Project in Nevada were authorized. The second year of Federal Reclamation produced seven more authorizations; and 1905 saw work undertaken in nine additional locations. Three were originated in 1906, and one in 1907. The total estimated cost of these twenty-four projects was seen to so far exceed the probable annual accretions to the Reclamation Fund for the next period of years that no further authorizations took place until 1912. Four projects have received authorization since then—two in 1917, and two in 1926.⁷

expected or contemplated that the works constructed by the Government will include anything but reservoirs and the main canals, leaving, even under the systems constructed by the Government, all of those diversion and distribution works which may be constructed by individual or coöperative effort, to be so constructed."

- ⁷1903 Salt River Project, Arizona
- " Milk River Project, Montana
- " North Platte Project, Nebraska
- " Newlands Project, Nevada
- 1904 Yuma Project, Arizona
- " Uncompahgre Project, Colorado
- " Minidoka Project, Idaho
- " Lower Yellowstone Project, Montana
- " Hondo Project, New Mexico (abandoned)
- " Belle Fourche Project, South Dakota
- " Shoshone Project, Wyoming
- 1905 Boise Project, Idaho
- " Garden City Project, Kansas (abandoned 1910)
- " Huntley Project, Montana
- " Klamath Project, Oregon
- " Umatilla Project, Oregon
- " Rio Grande Project, Texas
- " Strawberry Valley Project, Utah
- " Okanogan Project, Washington
- " Yakima Project, Washington

The projects thus rapidly authorized were widely spread throughout the western states, partly in compliance with Section 9 of the act, and partly in response to the pressure of local groups. Section 9 declared it to be the duty of the Secretary of the Interior to expend the major portion of the funds arising from the sale of public lands within the limits of the state in which the funds were collected. Although practicability and feasibility of the projects were to be the ultimate determining criteria for their location and authorization, provision was made that when ever any part of the major portion of the funds derived from the sale of lands in one state should be used in another, the excess should be restored to the fund at an early time to permit its future expenditure in the state from which it was derived. This provision, working in conjunction with the insistent demands that were being made for early selection in all sections of the West, resulted in the immediate authorization of almost all the projects, each state, except Oklahoma, being granted a project within its borders within five years of the passage of the law.

The statutory provisions restricted the government activities to the construction of the major works of storage reservoirs, dams, and tunnels, with the intention that distributing canals would be built by the settlers; this caused the main problems encountered in the early years to be those of engineering. These were so well solved that engineers today, looking upon the variety and magnitude of the completed structures conceived and designed in these early years, regard them as monumental triumphs of the skill and genius of their scientist creators. Such is the esteem for the Arrowrock Dam on the Boise Project in Idaho, the highest storage dam in the

1906	Sun River Project, Montana
"	Williston Project, North Dakota (abandoned)
"	Carlsbad Project, New Mexico
1907	Orland Project, California
1912	Grand Valley Project, Colorado
1917	King Hill Project, Idaho
"	Riverton Project, Wyoming
1926	Owyhee Project, Oregon
"	Vale Project, Oregon

world, said to be "the most spectacular structure to the credit of the Service";⁸ the Elephant Butte Dam on the Rio Grande, with a capacity of 2,638,000 acre-feet, forming the largest irrigation reservoir in the United States; and the Shoshone Dam in Wyoming and the Roosevelt Dam in Arizona, two massive structures built in the mountain fastnesses where their construction is silent witness to the success and efficiency of their designers and builders.

Great care has been exercised at all times in the details of construction. During the construction of the larger dams and canals, careful supervision has been given in determining the materials to be used. Two laboratories were at first maintained for the purpose of cement-testing—each in charge of a cement expert, employed by the Service.⁹ After July 1, 1917 the cement testing work for the Reclamation Service was taken over by the Bureau of Standards of the Department of Commerce.¹⁰ Carefully systematized organizations have been maintained for supervising costs and outgo through other branches of the Service such as the purchasing and shipping divisions. Special economies were effected on some projects by government construction of highways and railroads, thus providing an immediate and permanent saving from delay and haulage charges.¹¹

⁸ C. J. Blanchard, "Reclaiming the Desert," in *The Mentor*, October 15, 1918. Plate V.

The Arrowrock Dam is 350 feet high. Other dams now under construction by the Bureau will exceed this in height. The Owyhee Dam in Oregon, for example, will be 405 feet high and the Boulder Dam in Colorado, approved by Congress December, 1928, will be 700 feet high and will impound water enough to cover the state of Maine to a depth of one foot.

⁹ Situated in Denver and San Francisco.

¹⁰ Eighteenth Annual Report of the Reclamation Service, 1918-1919, p. 38.

¹¹ The construction of the Roosevelt Dam on the Salt River project exemplifies the intensity with which the Government undertook the work. There, in addition to the building of a highway of miles through rough and unpenetrated country, a cement mill, saw mill, waterworks, sewerage system and farms to provide food for the employees were established at the dam-site to facilitate efficient work. Similar organization was undertaken on the Boise Project in constructing the Arrowrock Dam.

For interesting and graphic accounts of these developments see:

On many projects, it became necessary to construct some type of power plant to cheapen the cost or to facilitate the construction work on the larger structures such as dams and tunnels.¹² Steam-power plants were considered where cheap fuel could be found; but in the majority of cases hydro-electric facilities afforded at the outlet of storage reservoirs, at diversion dams, or at the drops in main canals, provided the greatest and most successful opportunities for power development. In connection with many of the projects, the storage or diversion dams, from which water was to be drawn for irrigation, have since provided the opportunity for the economic development of hydro-electric power. The power thus provided is now used for pumping water for irrigation, for draining the land of seepage water, or for consumers' use. As a result, power is available for lighting and other purposes on many of the farms and in the neighboring towns of the reclamation projects.

From the earliest operation under the act, the Bureau has been confronted with legal problems concerning the construction, operation, maintenance, and administration of the Federal irrigation projects. Likewise, certain important provisions of the law contained an ambiguity which made it difficult to administer the act. To treat with these matters, a legal division was created soon after 1902. The duties of this body are to effect the settlement of water rights, examination of titles, the condemnation and purchase of land; to acquire rights of way, prepare contracts for the building of irrigation works, purchase machinery and equipment; to prepare public notices and agreements with water users' associations, try law suits, and operate in an advisory capacity with State and Federal officials and water users. Seven Western offices operating in this capacity, each one in charge of a District Counsel, handle the legal matters of the projects.

In addition to the active work of engineering and develop-

George Wharton James, "Reclaiming the Arid West," in *The Mentor* for October 15, 1918.

¹² The utilization of such power facilities is authorized by Congress in an act of April 16, 1906 (34 Stat. L., 116).

progress for all of the projects was felt to be insufficient for the completion of the existing work. Accordingly, it was proposed that Congress advance to the Reclamation Service a \$20,000,000 bond loan repayable out of the Reclamation Fund in twenty equal annual installments beginning in 1920. A measure to this effect was approved on June 25, 1910¹⁵ with the provision that a board of Army Engineers should examine the projects and recommend the allotment of the loan among the projects. On the basis of the report¹⁶ resulting from the survey made by the army engineers, the \$20,000,000 loan was distributed among the projects and has been repaid at the rate of \$1,000,000 annually since 1920.

As the unoccupied public lands become increasingly more scarce, the proceeds from that source are continually less. Several acts have been passed, which have been intended to supplement the reclamation receipts derived from the sale of public lands. An act passed in October 1917 provided that all receipts from royalties and rentals of potassium deposits should go to the Reclamation Fund.¹⁷ In 1920, it was provided that a certain percentage of all money received from the sales, bonuses, royalties and rentals of land under the Oil Leasing Act¹⁸ should be paid into the Reclamation Fund. A

(Source: S. Doc. No. 92, 68th Cong., 1st sess., 208, Table No. 1)

Original estimated cost of Projects:

Salt River	\$5,650,000	Newlands	\$5,383,997
Yuma	2,701,196	Carlsbad	600,000
Orland	685,085	Hondo	275,000
Uncompahgre	2,500,000	Rio Grande	7,200,000
Boise	9,867,800	Williston	235,460
Minidoka	2,538,656	Umatilla	1,086,000
Garden City	258,000	Klamath	4,394,311
Huntley	900,000	Belle Fourche	2,335,000
Milk River	7,426,452	Strawberry Valley ..	2,722,000
Sun River	7,372,400	Okanogan	432,500
Lower Yellowstone ..	2,039,218	Yakima	6,545,803
North Platte	3,500,000	Shoshone	4,310,238

\$80,959,116

¹⁵ U. S. Stat. at Large XXXVI, 835.

¹⁶ H. Doc. No. 1262, 61st Cong., 3rd sess.

¹⁷ Act of October 2, 1917, U. S. Stat. at Large XL, ch. 62, 300.

¹⁸ Act of February 25, 1920, U. S. Stat. at Large XLI, ch. 85, 450. Section 35 of the act reads: "... for past production 70 per

measure with similar provision was the "Federal Water-Power Act"¹⁹ passed in June 1920, which authorized "50 per centum of the charges arising from licenses hereunder for the occupancy and use of public lands, national monuments, national forests, and national parks"²⁰ to be paid into the Reclamation Fund. Except for the funds received from water users through project collections, the proceeds derived under the Oil Leasing Act now provide the largest single item of receipts in the reclamation income. The fund totaled \$9,208,247²¹ at the end of the fiscal year 1928.

At that time (June 30, 1928), the total construction cost of the projects amounted to \$178,688,037.54. This with an additional \$7,626,193.47 for operation and maintenance charges owing the Government, brings the total construction account to \$186,314,231.01. Deducting from this the amounts collected in repayment, the amounts charged off, and the non-reimbursable costs, totaling over \$20,000,000, the total to be repaid by water users comes to \$166,106,719.41.²²

The repayment of the construction cost by the project settlers has always been a subject for controversy. Originally, the reclamation act provided for a revolving fund plan covering ten years, whereby the money as it was returned to the Federal treasury would be available for other irrigation projects.

Very soon after the first construction repayments were due from the project settlers, demands were made for lightened conditions of repayment in which the ten equal payments should be extended over a twenty-year period, or a system of graduated construction payments authorized. Despite the

centum, and for future production 52½ per centum of the amounts derived from such bonuses, royalties, and rentals shall be paid into, reserved, and appropriated as a part of the reclamation fund created by the Act of Congress, known as the Reclamation Act, approved June 17, 1902. . . ."

¹⁹ Act of June 10, 1920, U. S. Stat. at Large XLI, ch. 285, 1072.

²⁰ *Ibid.*, p. 1072.

²¹ P. 309, Annual Report of the Secretary of the Interior for the fiscal year ended June 30, 1928.

²² Figures taken from the Bureau of Reclamation Consolidated Financial Statement for June 30, 1928. Annual Report of the Secretary of the Interior for the fiscal year ended June 30, 1928, p. 309.

fact that the 1910 survey made by the army engineers had resulted in the conclusion that the general adoption of a relief measure was not believed to be either necessary or advisable,²³ in 1914 the situation had so developed that relief was essential. This realization resulted in urgency for the extension act, passed August 13, 1914, in which the time of payments was extended to twenty years, and a slight provision was made for graduated payments. It was determined that five per cent. of the official construction charge should be payable at the time of application for the land, after which no payment was to be due for four years. During the next five years, five per cent. annual payments were to be made, following which seven per cent. of the construction charge was to be due annually for ten years.²⁴

As a further result of the demands for relief which became so strong in 1914, means for more extended investigation were afforded. At this time, opposition to payments by water users and objections to the construction costs on projects became so serious that Secretary Lane created the Central Board of Review, with authorization to conduct hearings and make recommendations as to what payments ought to be made by settlers.

Although the feeling had been that the charges were too high and that a large part of the cost ought to be written off, the findings and reports of this Cost Review Board did not bear this out. This body found that high charges for water were not responsible for the evils of the projects, but "inflated land prices, high freight charges, high interest rates, alien landlordism, and normal and not actual compliance with the regulations fixing the size of farm units that closely verges on fraud,"²⁵ were the true causes of the difficulties. In the light

²³ H. Doc. No. 1262, 61st Cong., 3d sess., 18.

²⁴ U. S. Stat. at Large XXXVIII, 686, Sec. 1.

The Extension Act had resulted in a change in reclamation policy in another respect, for whereas the Act of 1910 had provided that new projects should be authorized only on recommendation of the President, the Reclamation Extension Act of 1914 gave Congress supervision over appropriations and expenditures made from the Reclamation Fund.

²⁵ Report of the Central Board of Review on the Carlsbad Project,

of this, they advised that the Government should fix the project cost, rigidly enforce this payment on those able to pay, adopt measures to enforce cultivation of farm units, and put an end to the evasion of the regulation fixing the size of farm units.

Because of the inflated conditions during the years of the World War and the smaller installments that were at first required under the Extension Act, no serious trouble concerning payments was again experienced until 1920. However, from that year on, in spite of the relief offered by the Extension Act, settlers, again experiencing financial distress, were unable to meet the charges assessed them. Hence, a series of leniency acts, providing that the Secretary of the Interior might defer the payments then due, was passed in 1921,²⁶ 1922,²⁷ 1923,²⁸ and 1924.²⁹ These moratoriums afforded a present easement, but gave no permanent remedy, serving only to prove that temporary extensions of time and suspension of charges tend to increase the settlers' debts and add to their hardships.³⁰ "This remedial legislation," it was stated in 1924, "has not removed the troubles it was intended to cure.

The deferment of charges does not touch the heart of the matter. The distressing symptoms of 1911 still obtain."³¹

The observation has been made that the activities of the Reclamation Service fell into three stages of growth:—

(1) That of survey, examination, tentative approval and adoption of the projects, nearly all of which were practically selected under the direction of Secretary E. A. Hitchcock during the years 1902 to 1906. (2) Then came the period of active construction during which many of the larger dams, canals and tunnels were built and the problems of efficient and economical building were given most atten-

New Mexico. Reclamation Record, July, 1916, p. 299. Whole report, 298-308. Only a few of the reports made by the Central Board of Review were published. The report on the Salt River Project, Arizona, was published in the Reclamation Record for January, 1917, pp. 14-21.

²⁶ U. S. Stat. at Large XLII, 4.

²⁷ U. S. Stat. at Large XLII, 489.

²⁸ Ibid., 1324.

²⁹ Ibid., XLIII, 116.

³⁰ S. Doc. No. 92, 68th Cong., 1st sess., Preface ix.

³¹ Twenty-third Annual Report of the Bureau of Reclamation for the fiscal year ended June 30, 1924, 3.

tion. This extended up to about 1910. (3) Next succeeded the present era of problems more intimately connected with human nature and its limitations, namely, those of the settlement of the land and its use by newcomers.³²

Although it did *not* arise only after the complete termination of the first two stages—as this early statement intimated, —the later stage, toward which the two preceding were so inevitably tending, has reached such a position of importance as to quite overshadow the others in present reclamation activities. It was the pressure of this last stage and its attending circumstances that has prompted the various revisions to which the original act has been subjected, namely, the Extension Act and the succeeding Leniency Acts. Even so, these revisions were found in 1924 to be inadequate when it was observed:—"Running through nearly all of the legislation supplemental to the original reclamation act, is evidenced the belief that the settlers were in need of relief. Thus far this has been restricted to extensions in time of payment. There has been no serious constructive attempt to remedy the defects in the act, or to solve the difficult problems of administration and settlement, which have arisen."³³

With a realization of this fact, a group of six men from different walks in life were appointed by the Secretary of the Interior as a Committee of Special Advisers on Reclamation, and were asked "to make an intensive study of the policy, application, and operation of Government methods of reclaiming arid lands by irrigation,"³⁴ the problems of which had become a matter of national concern. Thus, in 1924, the difficulties were squarely faced. The report³⁵ submitted by the Committee of Special Advisers shows evidence of a thorough understanding of the status and scope, the needs and weaknesses of reclamation; and the legislation resulting from this report,³⁶ though limited in the light of the recommendations

³² Twelfth Annual Report of the Reclamation Service, 3.

³³ S. Doc. No. 92, 68th Cong., 1st sess., 40.

³⁴ *Ibid.*, p. 24.

³⁵ *Ibid.*

³⁶ U. S. Stat. at Large XLIII, 701. The report of the Special Advisers is frequently called the Fact Finders' Report, and the law resulting is entitled "The Fact Finders' Act."

submitted, deals satisfactorily with many of the most urgent problems that have arisen. But before taking up the content and workings of this legislative enactment, it is appropriate to examine more fully into the weaknesses and inherent defects of the reclamation policy as it had been applied and interpreted through the years, to discover the true nature of the matters which demanded the attention of the advisers, and the policies, concerning which remedies should be sought and changes inaugurated.

It is a principle commonly expected, and one given ample proof during the years when reclamation was still a proposal, that as long as a scheme is a proposal it is a subject of active controversy. Thus, it is believed that opinions offer most formidable influence when they are in the stage of philosophical outline. At the same time, it is generally equally well accepted that a scheme passes, as soon as it has been put into practice, into the haven of accepted doctrines. It is evident from the statements in the preceding chapter that discussion was active prior to the adoption of the measure authorizing Federal Reclamation. Although we find that the subject was by no means immune from active controversy after it had become an established reality, yet discussion and debate seemed to be concerned with different factors after the passage of the 1902 measure than before; and homemaking, as the *raison d'être* of reclamation, was for the time forgotten.

Attacks were made on matters unplanned for in the first discussion, and critics assailed the movement, not upon the results of action taken in response to the emphasized opinions, but upon the development that had taken place in complete disregard of the first-formed and most emphatic arguments. In few instances do we find the critics of most recent years criticising the measures with the arguments upon which it had been manifestly passed. This changed attitude is undoubtedly a result in part of the defects inherent in the original act, but more especially is it a result of the altered social conditions and changing viewpoints characteristic of the times.

With the revision effected by the act of June 1910, one of the greatest fallacies of the original reclamation act, and one responsible more than any other single factor for the difficulty of later years was then remedied by repeal of Section 9. As has been previously noted, this section of the 1902 act provided that the major portion of the funds derived from the sale of public lands within the arid states and territories should be expended within the area from which it was obtained. It was subsequently discovered that no provision could be more effective than this in hampering the economic location of projects. It was declared in 1924:

This provision assumed, first, that each State offered equally attractive projects for reclamation, or that in each State could be found a sufficient number of desirable reclamation projects to absorb the money derived from the sale of public land within that State. This was not the case. The arid and semi-arid area covers a great variety of climatic and soil conditions. Marketing and transportation conditions also differ greatly. In undertaking so vast an experiment as that contemplated by the Reclamation Act, the easier and more desirable projects should have been attacked first. On the contrary, in obedience to the provision in the original act, projects were authorized in every State designated in the original act except Oklahoma.³⁷

Although the repeal of this provision in 1910 has insured that future operations shall not be pursued under its short-sighted restrictions, yet the twenty-four projects authorized prior to its repeal constitute a majority of the present projects of the Bureau; and this fact should explain to a great extent the constant recurrence and partial inevitableness of problems of an insoluble nature.

Another mistake of reclamation policy, arising as a result

³⁷ S. Doc. No. 92, 68th Cong., 1st sess., 37. Little besides the available water supply and the engineering features were considered in the authorization of the early projects. Economic feasibility, the possibility of rapid settlement and establishment of farm homes, railroad and marketing facilities, and the relation of land and crops were matters receiving scant attention in the early days of reclamation. It was truly an illustration of effective political influence whereby "every patch of brown sagebrush became a prospective Garden of Allah in the mind of someone. All it needed was a Moses with his staff to make the water gush forth and, lo, the desert would burst into bloom."—Editorial, *The Country Gentleman*, "Reclamation Politics," January, 1927, p. 26.

of the provisions of the act, is that money from the Reclamation Fund is loaned interest-free.³⁸ While the non-interest bearing feature of the act illustrates effectively the desire of its framers to make reclamation a homemaking measure rather than a profit-making activity, this provision has been in large part responsible for the slow success in settlement and home-building. Had a provision been made in the 1902 law for a low rate of interest repayable with the construction cost, instead of involving the government in business activities outside its realm, it would have urged the settlers to pay their obligations more rapidly and thus make reclamation solvent. This feature of the law has not been changed, and the Bureau is still operating under a provision which has been described as one of the most "mischievous and pernicious" provisions of the original legislation.

Closely associated with the disregard of economic circumstances in the location of projects, referred to above, is the non-economic method of repayment provided, which has been the subject and cause of the numerous relief and leniency acts. The Reclamation Advisers, observing that the ten and twenty-year repayment plans demanded that all projects, regardless of location or cost, should pay out in the same length of time, remarked that:

This provision was upon the assumption that the cost per acre to the farmer, under the most difficult conditions would be so low as to enable him easily to make the required payments. This assumption proved erroneous . . . The failure to recognize in the fundamental law the differing acre costs and varying earning powers of the lands under the projects to be established has been the prime cause of discontent among the project settlers.³⁹

The present law was modified in this respect; but the continued operation for twenty-two years and the ensuing discontent were a source of much of the criticism which fell on the Reclamation Service, causing an attitude of mind to develop which is difficult to erase when once it has become established.

³⁸ See in this connection Teele, *The Economics of Land Reclamation in the United States*, 70, 168, 317 ff.

³⁹ S. Doc. No. 92, 68th Cong., 1st sess., 37.

The great divergence between the acre cost estimates made in the preliminary surveys along with the subsequent increased acre costs of later years was partly responsible for this unfortunate reaction. A letter from the Director of the Geological Survey read during the Senate debate on February 6, 1902, indicates the anticipated low cost of reclamation expenditure during the years prior to Federal enterprise. The letter read in part:

The surveys and examinations made in different parts of the arid region show that the cost of water conservation ranges from \$5 per acre in the most favorable cases up to \$20 or \$25 per acre where the conditions are less favorable. Moreover, whereas \$25 per acre may be prohibitory in Montana for raising alfalfa, it is reasonable in Arizona, where high-class products are produced. . . . The reclamation of 20,000,000 acres of arid land by means of irrigation would, on an average, cost probably from \$10 to \$15 per acre, and the ultimate average value would be three times as much.⁴⁰

Accordingly, in further Senate discussion, \$15 per acre was taken to be the average cost for the construction of works. The House, too, adopted an estimate which proved, in the light of subsequent experience, to be abnormally low. In that body it was said: "It is estimated that this bill will create a reclamation fund of \$2,500,000 annually, and that it will cost \$10 per acre to reclaim the arid lands. If this be approximately correct we can reclaim 250,000 acres per year."⁴¹ Another analysis of the cost of reclamation gave a different but an equally fallacious cost estimate, saying:

All that the Government would do in most places would be to construct reservoirs to impound the waters. This would cost an average of \$4 to \$5 per acre, which would be a charge on the land benefited and would have to be repaid by the settlers at the rate of one-tenth annually for ten years. In addition, the settler would have to level his land and excavate irrigation ditches to convey the water from the river or reservoir to his land, and this cost would be \$15 to \$20 per acre additional, so that every acre of his land would cost him at least \$20, or an average probably of \$25.⁴²

Not only did the congressional estimates anticipating the

⁴⁰ Cong. Rec. (1902), 57th Cong., 1st sess., 1384. See also S. Rept. No. 254, 57th Cong., 1st sess.

⁴¹ Cong. Rec. (1902), 57th Cong., 1st sess., 6760.

⁴² *Ibid.*, p. 6766.

law fall far short of the original estimated cost per acre, but the actual estimates that were made at the time of the authorization of the projects by the Secretary of the Interior were found to require a change upward. The Secretary's estimated acre cost, averaging \$30.57,⁴³ although over twice the amount accepted by the Congressmen as the probable cost of construction, proved, after a ten-year period, too low to cover a 50% increase in wages and a 60% increase in other prices.⁴⁴ It was declared: "The increase of cost of the works over the anticipated amount arises from two principal causes: First, because, as above stated, a very large number of additional structures have been provided; and, secondly, because of the increased cost of labor and materials. When the plans were made, during the years from 1902 to 1905, prices were relatively low."⁴⁵ Subsequent years have proved that the actual cost per acre to the Bureau of Reclamation averages more nearly \$85 (than \$15 or \$30.57) with a range from \$43.15 to \$162.80 per acre.⁴⁶

	Project	Original	Actual Cost Per Acre	Percent Increase
		Estimated Cost Per Acre		
Arizona	Salt River.....	\$28.00	\$ 49.50	76.8%
	Yuma	35.10	142.80	306.8
Calif.	Orland	40.29	52.80	31.
Colo.	Grand Valley.....	86.00	133.90	55.7
	Uncompahgre	25.00	68.90	175.7
Idaho	Boise	26.55	89.00	235.2
	King Hill.....	66.66	137.75	106.9
	Minidoka	20.98	66.30	216.
Montana	Huntley	25.71	46.10	79.3
	Milk River.....	29.48	101.70	244.9
	Sun River.....	28.80	100.00	247.2
	Lower Yellowstone.	30.90	77.35	150.3
Neb.-Wyo.	North Platte.....	35.00	84.30	140.8
Nevada	Newlands	14.55	94.75	551.2
N. Mex.	Carlsbad	30.00	55.75	85.8
	Rio Grande.....	30.00	104.70	249.

⁴³ S. Doc. No. 92, 68th Cong., 1st sess., Exhibit I, Table I, 208.

⁴⁴ Eleventh Annual Report of the Reclamation Service, 7.

⁴⁵ Ibid.

⁴⁶ S. Doc. No. 92, 68th Cong., 1st sess., Exhibit I, Table I, 210.

This actual cost increase has caused an average increase in acre cost for all the projects of 175%, with a varying increase which ranges from 30% on the Orland Project to 550% on the Newlands Project.

	Project	Original	Actual Cost Per Acre	Percent Increase
		Estimated Cost Per Acre		
Oregon	Umatilla	53.90	109.10	102.4
	Klamath	18.59	77.90	319.
S. Dak.	Belle Fourche.....	29.55	43.15	46.
Utah	Strawberry Valley..	45.37	64.30	41.7
Wash.	Okanogan	50.00	162.80	225.6
	Yakima	36.00	91.20	153.3
Wyoming	Riverton	67.77		
	Shoshone	39.18	116.40	197.
		Average.....		175.5%

In assigning a cause for so wide a divergence in probable and final estimates, the officials of the Reclamation Service have said:

The early ideas of cost were based upon the results obtained by the pioneer. The first settlers, acting singly or in communities, built comparatively cheap and temporary canals in the localities where the engineering problems were least difficult and provided a supply of water which, without storage and without protection against floods, was frequently unreliable. The average cost per acre was estimated at an extremely low figure because of the fact that the actual cost was not recorded and the acreage which might be irrigated was, as a rule, highly exaggerated, no allowance being made for imperfect water supply nor for lands which for one reason or another could not be irrigated.⁴⁷

With a rounded view of the activities that a perspective of over a quarter of a century gives us, this may be viewed as but another way of saying that the additional costs of reclamation of later years over the early estimates were a result of the changing conceptions of the scope of the service performed. Yet, the change was gradual and was presented and accepted step by step. In discussing this changed attitude at the end of ten years' activity, it was said:

When the act was discussed in 1901 and 1902, it was generally assumed that the principal operations would be those of constructing the larger reservoirs and main line canals, leaving to the farmers the building of the distributing system, in this respect following out the practice of the pioneers, who, individually, or in small groups, worked together to take the water out of the natural streams. . . . It was found that the construction of the reservoirs and main line canals was not followed by the expected coöperation on the part of the settlers, and that to enable the lands to be cultivated it would be necessary to provide a complete system by which the water is taken to the vicinity of each farm.⁴⁸

⁴⁷ Eleventh Annual Report of the Reclamation Service, 1912, p. 2.

⁴⁸ Ibid., p. 5.

In a similar way, just as the concept that the duty of the Government was restricted to the building of reservoirs and main-line canals was discarded when the need of building smaller canals, bridges, culverts and roads was impressed upon the officers of the service, so the idea was dismissed that as soon as water was provided the end of necessary expenditures was reached. It came to be realized that the need of leveling and draining the land was as vital to the settlers as the major construction operations; and "the most effective help that can be given settlers is at the beginning of their operations rather than later on."

It was with this transition of thought in viewing the scope of reclamation that the observation was made: "The object of the reclamation law is homemaking on the arid lands—the conversion of desert tracts into self-supporting agricultural communities. This object is not obtained by the construction of irrigation works alone, however elaborate or efficient these may be in design and operation. . . . Reclamation is measured not in engineering units but in homes and agricultural values."⁴⁹ In this a new note was struck. Reclamation was no longer felt to be purely an engineering enterprise but was seen to have economic functions to fulfill.

Yet not a new note, but one which had for a time been overlooked in the action of a more dominant theme, was this return to the original object and status of reclamation. To its most earnest advocates, reclamation, from its earliest inception has had no other purpose to fulfill so important as homemaking; and the fact that this was again emphasized and reiterated in the report in 1924 of the reclamation advisers, tends to prove the strength and potency of successful home and community building as an original argument and as an ultimate goal for reclamation.⁵⁰

⁴⁹ Fourteenth Annual Report of the Reclamation Service, 14.

⁵⁰ The Fact Finders in reviewing the 1902 act stated: "The provision for reclamation implies that the lands of the arid and semi-arid region shall be made susceptible for larger public use, especially by making possible upon these lands the maintenance of homesteads. In fact the family, with its life and requirements, is the chief concern of the original reclamation act." (S. Doc. No. 92, 68th Cong.,

This belief, then, guided the Special Advisers in 1924 in submitting their recommendations, thirty-eight of which had general bearing on reclamation policy, and twenty-eight of which were of particular application to specific projects. These recommendations had been compiled after extensive surveys and analyses into the life and homemaking conditions of the project settlers. In the analyses made, it was found that "the project settlers . . . were unselected as to fitness by experience or financial ability to undertake irrigation farming. Many entered on the venture with little conception of the expenses or physical obstacles they would meet in creating a farm. It was a situation which made the agricultural needs of this heterogeneous body of water users the most important factor in this development."⁵¹

With this realization in mind, the situation was examined and recommendations were framed; and from a vantage point that afforded a keen perception into conditions, it was concluded:

The inexperienced farmer should have been given more and better information and advice; the poor farmer, with honest courage but little or no capital should have been provided with proper credit facilities; the farm with a rough, rolling surface should have been leveled; the greedy owner of private lands ready to trade upon the natural desire of vigorous, hard-working men, for independent homes, should and could have been squelched; the good farmer, with small business capacity, should have been given the assistance of coöpera-

1st sess., 36). And again after a survey of project conditions had been made, it was recorded: "The physical conditions of the Federal irrigation projects is of fundamental importance but does not of itself lead to success. The people living on the projects must find contentment under existing conditions, through varying seasons, some with large and some with small crop returns. Contentment is perhaps the first requisite of project success. Naturally such contentment depends largely on the physical conditions that lead to material prosperity; but it is also dependent upon other factors of a more subtle character. After a reasonable satisfaction of the physical requirements of man has been won, contentment depends primarily upon the prevailing social conditions." (*Ibid.*, p. 108). In analyzing the purpose of the Reclamation Act, the 1924 Report stated:—"A main purpose of the Reclamation Act was to provide opportunities for homestead making for rural-minded people. Making a homestead, a place able to support a family and desirable for family life, must remain the central thought of every activity connected with Federal reclamation." (*Ibid.*, p. 111).

⁵¹ *Ibid.*

tive organizations for buying and selling; all should have been supplied with intimate advice, from competent official advisors, on all farm matters; and by every effort, the way should have been made easier for the water user, who not only profits by the labor and skill of the engineer, but who also absorbs engineering mistakes and pays engineering bills. Such singleness of purpose in winning project success by helping the farmer would have brought greater success to the projects, avoided the present danger, and would early have uncovered needed changes in policy or methods.⁵²

In the letter of transmittal to the Secretary of the Interior, which accompanied the report itself, four immediate improvements were suggested:

Numerous minor causes of project distress will be found mentioned in the attached reports; but if (1) the lands of the existing projects are scientifically studied, classified and valued, (2) aid and direction given in agricultural development, (3) the project management assumed by the water users, and (4) a scientific and adequate plan of repayment adopted, all other elements of project discord and difficulty become of relatively slight importance.⁵³

Accordingly, when legislative remedy was sought, these four matters were given early consideration along with the other matters of pressing moment brought out by the Fact Finder's recommendations. The act of December 5, 1924, embodies in it certain provisions which are a direct outgrowth of the recommendations of the Committee of Special Advisers and has therefore been entitled "The Fact Finders' Act." Provision has therein been made for scientific classification of project lands with equitable apportionment of construction charges on the lands of different value "so that all lands may as far as practicable bear the burden of such cost according to their productive value."⁵⁴ It provides for the early transfer of the project works to the water users through a legally organized water users' association or irrigation district,⁵⁵ and for a more effective and previously untried method for repayment of construction charges whereby all project construction charges are based on the productive power of the land.⁵⁶ The amount of the annual payments, it was deter-

⁵² Ibid.

⁵³ Ibid., p. XIV.

⁵⁴ U. S. Stat. at Large XLIII, 701, Sub-section D.

⁵⁵ Ibid., Sub-section G.

⁵⁶ Ibid., Sub-section F.

mined, should be 5% of the average gross annual acre income determined from the average return for the ten preceding years of project history.⁵⁷ In addition, the Act of 1924 authorized that each applicant for land should possess certain qualifications as to industry, experience, character, and capital as were considered necessary "to give reasonable assurance of success,"⁵⁸ and that new projects were to be authorized only after satisfactory information had been obtained regarding the water supply, engineering features, cost, land prices, feasibility and adaptability for settlement and farm homes.⁵⁹ Thus three of the primary recommendations of the Special Advisers were given immediate attention and only the second—that of aid and direction in agricultural development—was inadequately considered at that time.

The act of 1924 was supplemented on May 26, 1926, by an act,⁶⁰ framed according to further recommendations⁶¹ of the

⁵⁷ Contracts to this effect have been entered into on nine of the projects. The provision for the average annual return plan of repayment was repealed by the Act of May 25, 1926, except as to contracts actually pending at the time of the passage of the act, and a repayment period of forty years was then provided for.

⁵⁸ U. S. Stat. at Large XLIII, 701, Sub-section C. A memorandum for the press released September 14, 1925, by the Department of the Interior comments as follows upon the regulations for the selection of settlers on Federal irrigation projects in accordance with the terms of the 1924 law. Since "the intent of the law is to select the best qualified applicants for all farms available," the "applicant must possess good health and vigor and have had at least two years actual experience in farm work and farm practice. The applicant must have at least \$2,000 in money, free of liability, or the equivalent thereof in livestock, farming equipment, or other assets deemed by the Examining Board to be as useful to the said applicant as money." An Examining Board of at least three members is provided for each project to consider the fitness of applicants to undertake the development and operation of a farm. Each of the elements of industry, experience, character, and capital are considered to have a possible weight of 25 per cent., and the applicants are rated according to the following scale:

Industry	%	Farm Experience	%	Character	%	Capital	%
Fair.....	5	2 years or more		Fair.....	5	\$2000.....	15
Good	15	in East.....	15	Good	15	3000.....	20
Excellent..	25	2 years or more		Excellent..	25	5000.....	25
		in irrigation...	25				

⁵⁹ U. S. Stat. at Large XLIII, 701, Sub-section B.

⁶⁰ U. S. Stat. at Large XLIV, 636.

⁶¹ See recommendation No. 36, pp. 1, 10.

Fact Finders, empowering and directing the Secretary of the Interior to make certain deductions from the cost of many of the projects on account of deficits incurred and the determination of areas deemed permanently unproductive; and to suspend construction charges on lands which the land surveys, made in compliance with the provisions of Sub-section D of the 1924 act, had found temporarily unproductive. Write-offs under this act have amounted to \$10,947,241.32.⁶² Thus, through legislative channels there was complete adherence to the majority of the recommendations of the Special Advisers.

⁶² Consolidated financial statement of the Bureau of Reclamation in the Annual Report of the Secretary of the Interior for the fiscal year ended June 30, 1928, p. 310.

Four projects previously authorized had been abandoned before this act became effective:

Garden City.....	\$334,474.96
Hondo	371,827.66
Buford-Trenton	221,423.69
Williston	434,283.50

\$1,361,969.81

Authorized construction charge-offs under the act of May 25, 1916, were:

Grand Valley.....	\$812,374.64
Uncompahgre	47,370.81
Huntley	62,049.83
Milk River	1,911,189.00
Lower Yellowstone.....	382,254.00
North Platte.....	30,322.30
Newlands	4,437,820.00
Rio Grande.....	205,675.97
Umatilla	888,340.82
Klamath	7,417.16
Yakima	4,214.60
Shoshone	1,702,298.84

\$10,491,327.97

Authorized charge-offs of Operation and Maintenance after Public Notice were:

Huntley	\$81,354.00
Sun River	34,148.00
Newlands	211,292.00
Umatilla	91,083.35
Shoshone	38,036.00

\$455,913.35

(Source: Reclamation Table No. 4, 313. Annual Report of the Secretary of the Interior for the fiscal year ended June 30, 1928).

A further endorsement of the recommendations of the Special Advisers, though one not requiring a legislative act to bring it about, is evidenced by the creation, in 1924, of the office of Director of Reclamation Economics in the Bureau of Reclamation. The economic needs of the projects and of the settlers are closely studied in this division of the Bureau, and while even now the projects do not have an individual economic adviser as the Fact Finders recommended, they have had in Mr. George C. Kreutzer, the first Director of Reclamation Economics, and in Dr. Hugh A. Brown, the present Director, capable and interested central advisers who know the problems of each project intimately and are efficiently aiding in their solution. The creation of this office provides for the first time since the termination of the office of Supervisor of Irrigation in 1918, an economic adviser for the Bureau and the projects. The work of Mr. I. D. O'Donnell as Supervisor of Irrigation from 1913 to 1918⁶³ illustrates the first attempt to inject into reclamation policies an economic influence.⁶⁴ The present division of Reclamation Economics is the second and latest effort in that direction.

Thus it is that, with the appointment of Dr. Elwood Mead as Commissioner of the Bureau of Reclamation in 1924, a new policy was inaugurated in Federal reclamation, a policy which has placed the economic activities of the Bureau in a position of equal importance with engineering activities. Economic work under Dr. Mead's guidance has included soil surveys, land classification, and economic and agricultural reports of project conditions. At the same time, coöperative activities with water users' associations and other agencies to obtain settlers and to create needed coöperative organizations, have been carried on. The problems of Federal reclamation now include what the Commissioner has termed problems of

⁶³ See above, p. 49.

⁶⁴ The work of Mr. I. D. O'Donnell as Supervisor of Irrigation from 1913 to 1918 was very successful. The lack of such service to the settlers in past years is regrettable; and doubtless the realization of its value prompted the Special Advisers to urge the provision for agricultural advisers for the projects in their recommendations.

“human engineering,” and it is through his efforts that their importance has been grasped and their solution sought.

With so many of the fundamental project difficulties solved, the movement has gone far to place reclamation on a sound basis; but the action so taken has not yet been entirely effective in providing means for agricultural and financial aid. The recommendations of the Special Advisers advocating the dissemination of agricultural knowledge by the employment of agricultural advisers; and the creation of a credit fund to provide for farm improvement and equipment, making it possible to obtain long-time loans at low interest rates, have been completely ignored. Despite the realization that “capital, technical knowledge, credit, and technical advice are all needed to make farming profitable under these costly projects” and that “the farmers’ needs must be kept in mind in rewriting this act if Federal reclamation is to succeed,”⁶⁵ these very matters were given inadequate attention to assure a real and lasting relief to the water users and a smooth running reclamation machine for all time.

Although these needs of the project settlers are most urgent, and still inadequately cared for, the projects have continued to operate; and the need has become even more pronounced under the operation of the previously enacted legislation. What the significance of an adoption of a unified policy for agricultural and financial aid on the projects may be for the future of Federal reclamation and for the development of national policies toward it deserves further consideration. The effort in this chapter has been merely to present objectively the more important factors which have contributed to the progress of reclamation in the United States and the situation in which it now finds itself, without endeavoring to interpret their relation to the question of our future policy toward reclamation. This is the subject of the following chapters.

⁶⁵ S. Doc. No. 92, 68th Cong., 1st sess., XV.

CHAPTER III

FINANCIAL AID FOR RECLAMATION SETTLERS

The preceding chapters have intended, in the first place, to give an historical setting for the origination of the reclamation scheme, and to show the development that has taken place as the theory has become more complete. Special emphasis has been placed on the underlying motive—the plan for home-building—which has seemingly guided the legislators from the beginning.

In the second place, following this historical orientation, we have surveyed the existing reclamation machine and its operations from its inception to the present time. The strength and weaknesses have been examined at length, affording opportunity to adjudge impartially the success of the methods used to correct the mistakes and to continue its progress.

We come now to the closer study of the immediate situation and problem. It is apparent that even following the several remedial measures undertaken, reclamation has not yet enjoyed the prosperity and success planned for it in the minds of its most earnest proponents. The success that has been obtained has appeared insignificant in the light of the plans made by its early devotees; and by its critics, reclamation is frequently described as a dismal failure, serving to exemplify emphatically the general belief of the incompetency of “government in business.”

However, it is worth reviewing in quick survey the various achievements of the Bureau in its twenty-seven years of activity. On June 30, 1928, a volume of water sufficiently large to irrigate 1,956,910 acres of land on twenty-six projects had been impounded in reservoirs or diverted from regular stream channels by more than one-hundred dams built by the Bureau. Of this area, 1,378,990 acres were irrigated, and 1,431,560 acres were cropped during the season of 1927.

The average acre value of the crops produced during 1927 was \$59, or a total crop value for all the projects of more than \$72,047,200.¹ During the existence of the Bureau of Reclamation more than \$851,000,000 worth of crops have been produced on the projects. Should quantitative results alone be considered, reclamation success would probably be unquestioned. Reclamation has led to a creation of wealth many times the cost of the works.

Yet, the efforts of those who have caught the vision of greater reclamation, the meaning of it in the areas to which it has now been brought and the great future possibilities in Federal home-building, do not rest with satisfaction upon such evident success as these records present. To them, the era for reclamation development has just begun, now that the stability of the few and scattered areas which have served as acid tests to the theory, has been fairly established. In this experimental twenty-seven year period, changes have already been made in the policies; and further changes must be instituted to insure unfailing progress. It is the aim in this chapter and the next, to relate the most recent and most urgent problems which, first, have been presented or which, secondly, it appears would provide a basis for a real continuation of the progress which the last quarter century has experienced. The first of these will be treated in the present chapter, while the second will be the subject of the following chapter.

Probably at no time from the day when the first reclamation dollar was expended to that day when the last acre of arid or swamp land shall have been reclaimed will there be a complete cessation of the recurrence of some phase of the financial problem. In the past it has been ever present, appearing with regularity in the form of requests for lightened payments or lengthened periods for repayments, these two frequently being combined in the form of requests for complete withdrawal of all financial claims of the Government on its settlers.

¹ Annual Report of the Secretary of the Interior for the Fiscal Year ended June 30, 1928, pp. 139, 333.

It is not only the past which has seen demands of this nature. In 1927, more than one-half of the projects made requests for further reductions or for postponement of payments; this shows that the remedial legislation of preceding years has failed to present a complete solution for the financial problems of reclamation. The reason for this is apparent. There is scarcely a project which does not have vacant farm tracts for which settlers are sought; and some of the northern projects are facing the problem that with the present number of settlers project payments will not be able to be maintained. This will cause a loss to the Bureau, and possibly a writing off as loss of the complete project expenditure.

Thus, the problem of settlement presents itself as one of most urgent solution but one coördinate and ever related to that of project solvency. In the opinion of project superintendents, the one problem which must be solved preliminary to that of settlement but which, in its solution, will prove contributory to securing a more compactly located group of capable settlers, is that of financing the project settler. The project superintendents, from their intimate contact with the settlers on the projects, and from their position as representatives of the government interest, are perhaps better qualified than any others to express views concerning the operation of policies within the areas under their supervision. Through an inquiry directed to these men in which it was aimed to secure a faithful and accurate analysis of some of the most pressing economic difficulties on the projects, it was discovered that the sentiment within this group was almost unanimous concerning the importance of the credit problem and the need for its immediate relief. With the solution of it, they believed, settlement needs will automatically be cared for; while, without a fair treatment of it, settlement needs will continue to exist.

A farm organization, it should be observed, is in no way different from a manufacturing or business enterprise in its requirement for fixed and working capital. But whereas the business concern can secure the needed capital readily under

conditions made easy, the farmer, on account of the high risk element involved and difficulty encountered in obtaining adequate security, finds money forthcoming, if at all, only on the payment of exorbitant interest rates. This is characteristic of agriculture in general. It is of significance to note that under present conditions, credit terms rest even more harshly on reclamation areas than on other agricultural areas; the credit sources are even more limited for the aided than they have been for the unaided agricultural areas.

With the enactment of the 1924 law, the requirement was made that each settler applying for a project farm should have at least \$2000 capital in money or the equivalent in live-stock or farm equipment. The settlement records of the Bureau show that seventy per cent. of the applicants who apply for land have less than \$2000 capital and only ten per cent. have over \$2500.²

Following the enactment of this provision, careful analyses have been conducted on several of the projects, by which the amount of capital required to carry on irrigated agriculture was determined. The estimates of the capital required to provide the necessary development, improvements and equipment for a farm unit vary greatly among the several projects. It is agreed, however, that \$2000, here-to-fore required of all settlers applying to the Examining Boards for farms, is the minimum.³ Several of the project superintendents consider \$2500 in cash, equipment or stock sufficient to insure success; but the majority feel that a settler should have from \$4000 to \$5000 in capital to develop properly an eighty-acre farm.⁴

² See article by Dr. Elwood Mead on "The Future of Irrigation Development in Montana," *New Reclamation Era*, August, 1925, pp. 115-116. "The percentage of homeseekers with capital enough to improve and equip their farms without borrowing is very small, and the number willing to invest their capital in a development of this character is still smaller. They can get more for their money by buying improved farms in established districts." ("Some Economic Aspects of Federal Reclamation," an address by Dr. Elwood Mead at the meeting of the American Society of Civil Engineers, San Diego, California, October 4, 1928).

³ See table at the end of this chapter for a list of the estimated expenditures for a new settler on the Sun River project, Montana.

⁴ The eight-acre tract is considered by the project men as the most

The superintendent of the North Platte project in Nebraska, in reviewing the condition of the Northport Division, gives as his opinion: "Under the existing conditions, it is believed a settler should have capital or resources to an extent of not less than \$4000 to enable him to successfully undertake the development of an irrigated farm containing eighty acres."⁵ For proof that this is the minimum amount which a settler should possess, he cites the opinion of a Nebraska official closely associated with the development of the Northport division, that settlers should have \$5000 in capital to develop an irrigated farm of that acreage, and further observes that one of the officials of the district estimates that "a settler should have at least \$7,500 to undertake the development of 160 acres."⁶

The superintendent of the Minidoka Project, in Idaho, considering a similar question applying to the Minidoka Gravity Extension Unit, believes that a settler should have "at least \$5,000 in cash, low interest credit and equipment"⁷ to properly develop and equip a farm on the project. And a committee preparing an Economic Report in 1927 for the Payette Division of the Boise Project, Idaho, determined that "the prospective settler will need approximately \$7,000 to purchase the land, livestock, and equipment, and to develop the land to a high state of productivity quickly enough to stand the high operation, maintenance, and construction charges. This amount," they concluded, "must be available

desirable size for the farm units. Mr. F. A. Banks, Construction Engineer for the Owyhee Project, has arrived at this conclusion for the area under his supervision for the following reasons: "It is large enough to permit of proper rotation and diversifications of crops and yet small enough so that, with ordinary agriculture, it can be handled by one man. It costs no more to equip than a smaller unit so that the investment per acre is less." (Letter of May 12, 1928, concerning economic conditions on the Owyhee Project, Oregon, on file in the Washington Office).

⁵ Letter of May 12, 1928, from Mr. H. C. Stetson, Superintendent of the North Platte Project, Nebraska.

⁶ Ibid.

⁷ Letter of May 8, 1928, from Mr. E. B. Darlington, Superintendent of the Minidoka Project, regarding economic conditions on the Minidoka Gravity Extension Unit.

to him in the form of cash, necessary livestock, and equipment, or in credit of long and intermediate length.”⁸

Dr. Alvin Johnson, a rural economist, making investigations of some of the lower yielding projects in 1928 observed, in reference to the minimum capital required of an applicant for a holding: “This minimum of \$2,000 is recognized by the Bureau and by the settlers on the ground as altogether inadequate. Five thousand dollars, in cash or in reasonably long-term credit, is widely regarded as the actual minimum. Even this figure is, in my opinion, too low if the time element is taken into account and early full production is aimed at. Ten thousand dollars would be the figure I should regard as adequate.”⁹

Yet, in contrast to the capital requirements named in these statements, the majority of the settlers applying to the Examining Boards have considerably less, while many, as has been pointed out, are unable to meet even the \$2,000 minimum requirement set by the law. To procure the essential funds, recourse must be made to some outside credit agency. However, the credit facilities on or near the projects have been found to be seriously inadequate for enabling settlers to complete the payments on their farms, erect permanent improvements and buy livestock.¹⁰ Three of the Montana projects record a discouraging situation, one which is duplicated or only slightly bettered on projects of other states. Each of the projects so situated is now incompletely settled, and before it can come to a more secure economic status, the now vacant farm tracts must be farmed by industrious capable settlers. The credit terms available to worthy and ambitious

⁸ Economic Report on the Payette Division of the Boise Project, Idaho, January 15, 1927. By W. W. Johnston, G. H. Hogue and E. R. Fogerty, 7.

⁹ Report on “Economic Aspects of Certain Reclamation Projects,” by Dr. Alvin Johnson, in *Economic Problems of Reclamation* (U. S. Govt. Printing Office, 1929), 7.

¹⁰ An interesting study of general agricultural credit is the recent work of Dr. Clara Eliot, “The Farmers’ Campaign for Credit” (D. Appleton and Company, 1927); and a most readable statement of the credit provision is to be found in the article by A. G. Black, “The Provision for Agricultural Credit in the United States,” in *The Quarterly Journal of Economics* for November, 1928, XLIII.

settlers lacking personal capital on these projects deserved attention.

The superintendent of the Milk River Project found the credit facilities for advancing money to all settlers, and particularly new unestablished settlers of that region, decidedly inadequate. It was found that the "Federal Land Bank will not make loans on project lands,¹¹ especially those unimproved. The Agricultural Credit Corporation will assist established farmers who have some security to offer in the financing of livestock purchase. The local banks will make short time chattel loans to worthy farmers who are well established, but such loans bear 10% interest and are not available to the new settler. There is no agency at the present time available for the financing of raw land development."¹²

A similar situation is presented on the Lower Yellowstone project where "there is no money available for improving uncultivated land. Local banks will not advance money and outside loans are practically impossible to obtain. The Federal Land Bank will not loan on any but well improved property. Any local money obtained would be on short time notes at 10% interest."¹³ Only slightly better is the credit condition on the Sun River Project, which is located in closer proximity to a city of greater industrial and financial advancement than either of the two projects mentioned above, affording the settlers therefore easier access to financial aid. It was found there that "local banks are making some short time loans at 10%; banks in Great Falls are making loans of not to exceed six months at 8%. The Agricultural Credit Cor-

¹¹ First title to land on Federal Reclamation projects remains with the Government until total construction charges have been paid by the settler. Consequently, since Federal Farm Loans "may be made only to farmer-owners on first mortgage security" (A. G. Black, op. cit., p. 97) and only on income-producing farms, this source of agricultural credit is not available to project settlers until after the problems of settlement and farm development have been solved.

¹² Letter from the Milk River Project superintendent, Mr. H. H. Johnson, May 5, 1928.

¹³ Letter from Mr. H. A. Parker, superintendent of the Lower Yellowstone Project, May 15, 1928.

poration of Minneapolis is making loans for the purchase of livestock on a three-year basis at 6% with inspection and insurance charges increasing the interest to a little over 7%.”¹⁴

Very similar are the accounts of credit facilities reported by the superintendents of some of the other Northern projects. Settlers on the Minidoka Gravity Extension Unit of the Minidoka Project in Idaho encounter a situation where “the Federal Land Bank and loan organizations make loans . . . on developed farms,” but “there are no agencies which make loans . . . with only raw lands for security.”¹⁵ For the Belle Fourche Project in South Dakota, “there are no agencies that will provide funds for farm improvements”;¹⁶ while “no local bank or other organization can finance improvements of new settlers” on the Riverton Project in Wyoming. The Superintendent of this project analysed the problem and the reasons for the apparently unsatisfactory conditions for reclamation settlers as follows: “The improvements made on the land would constitute an increase in the security of the preferred creditor, in this case the United States. The loaning of money on poor security to improve the security of a preferred creditor is contrary to good banking principles.”¹⁷

Yet, with the settlers in the majority of cases incapable of providing improvements and equipment for their farms from their own resources and unable to secure credit or terms which will make such development easier, reclamation problems continue to exist and become more acute with time. The project supervisors and others coping with the situation before them and attempting to produce profits for both the Government and the settlers, see and present one solution.

¹⁴ Letter of May 11, 1928, from Superintendent George O. Sanford regarding the economic conditions on the Greenfields Division of the Sun River Project.

¹⁵ Letter from Superintendent E. B. Darlington, *op. cit.*

¹⁶ Letter from Mr. F. C. Youngblutt, superintendent of the Belle Fourche Project, South Dakota, April 28, 1928.

¹⁷ Letter of May 9, 1928, from Mr. H. D. Comstock, Superintendent of the Riverton Project.

The superintendents have found that for farms with improvements, though the improvements be most meagre, settlers can readily be obtained. The general conclusion arrived at coincides with that contained in the following opinion of Mr. E. B. Darlington, Superintendent of the Minidoka Project: "Present indications are that farms with buildings and prepared for irrigation can be sold to qualified farmers, but that raw lands will be settled very slowly unless some development work is done in advance of settlement, or cheap credit is supplied for buildings and other improvements."¹⁸ It is found in every case that "the majority of qualified applicants do not feel able to finance the necessary operations until the farm is on an income-producing basis,"¹⁹ and the possibility of getting settlers on the unimproved land is very remote under existing conditions. In proof of the ready demand existing for improved land and the few settlers willing to undertake the development of unimproved tracts, the Superintendent of the Orland Project (California) makes the following statement: "Some 2,700 acres of project lands changed ownership during 1927. Nearly 2,400 acres consisted of improved property, indicating that there was little demand for undeveloped lands."²⁰

The situation on the Milk River Project in Montana shows clearly the complex nature of the problem. The total irrigable area of the Milk River Project exceeds 76,000 acres. Of this area only 14,830 acres, or 19.6%, were cultivated in 1927 and 14,680 acres were cropped in 1927. The principal crops of the project lands are hay, grain and sugar beets. Transportation and marketing needs are adequately met, through direct connections to the principal Northwest markets. Crop returns in 1927 averaged \$15.05 per acre.²¹ The total expenditures on the project to June 30, 1928, for

¹⁸ Letter from Mr. E. B. Darlington, *op. cit.*

¹⁹ Letter of Mr. H. D. Comstock, *op. cit.*

²⁰ Letter of April 30, 1928, from Mr. R. C. E. Weber, Superintendent of the Orland Project, California.

²¹ Annual Report of the Secretary of the Interior for the fiscal year ended June 30, 1928, Reclamation Table No. 19, 332. These figures do not include those for land covered by Warren Act contracts.

construction, and operation and maintenance amounted to \$7,264,229.63.²² The construction cost on the Milk River Project has been fixed at \$57.00 per acre,²³ which is payable in forty annual installments beginning with 1932. Even with these lenient terms of repayment of construction charges, the other current payments have not been met promptly by the settlers, causing this project to be one of the least profitable of any operated by the Government. It has of late been urged, owing to the seeming inability to secure settlers to farm the lands and to pay off construction indebtedness, to write off as loss all project expenditure and turn the project over to the water users.

However, in spite of the unpromising condition of the project at the present time, Superintendent H. H. Johnson expresses his confidence in its ultimate solvency as follows:

It is true that a great portion of the Malta and Glasgow divisions is as yet unsettled and not cultivated, and it is almost certain that land in this condition will not be able to pay construction and operation and maintenance charges as they fall due under the provisions of the district contracts. It is also rather certain that the small portion of cultivated lands will not long be able to carry the entire burden of the joint liability contracts. While the tax delinquency at present is not great, the effect of an increased levy for liquidation of the construction debt is problematical. However, the great need of the project at the present time is not the relief legislation which will be effective after 1932, but legislation which will immediately assist in a more rapid colonization and improvement of the vacant lands. Such legislation would probably result in the placing of a great portion of the land now non-productive in such condition that the repayment of construction charges would be possible, and thus enhance the ability of the districts to meet in full their contractual obligation. Without some means, however, for the finance of worthy settlers, the improvement of this raw land will be slow, and the development of the project greatly retarded.²⁴

²² *Ibid.*, Reclamation Table No. 4, 312. See also "Economic Conditions and Settlement Difficulties on the Milk River Project, Montana," by H. H. Johnson, *New Reclamation Era*, July, 1928.

²³ The apparent discrepancy between this figure as the construction cost payable per acre and that announced by the Fact Finders in 1924 (See Chap. ii, 69, footnote 46) is a result of the write-offs effected under the Act of May 25, 1926. (See ch. ii, 76, footnote 62). \$1,911,189 previously expended on the Milk River Project was charged off under this act, subsequent to the time when the estimate was made in 1924.

²⁴ Letter from Mr. H. H. Johnson, *op. cit.*

He considers that "additional relief legislation is premature" until the present repayment plan under which the project is operating has been given a fair trial, and continues:

Whether the charge is to be \$1.00 per acre or \$1.42½ per acre will make little difference to the unimproved lands; neither charge can long be met. Before it can be definitely stated that the agriculture of the project can or cannot support any particular charge, the greater portion of the land must be under cultivation. It would seem that rather than assume an additional loss of \$1,500,000 incidental to a further write-off that a loan of a few thousand dollars would be justified in an attempt to place the project on such a basis that the districts have a chance to fulfill their obligations under the present contract.²⁵

Mr. Johnson¹ offers in support of these statements the results of an inquiry made into conditions on privately owned and operated projects in that section of the state. Concerning these he says:

Considerable progress is being made in the development of other Montana projects in private operation, where a revolving fund is provided for the aid of new settlers. In such places settlers are being obtained who are successfully cultivating their farms, and the projects are being improved with no apparent loss to the agency financing the operations. . . . The agricultural opportunities of these projects are comparable with those of the Milk River, and although the annual payments necessary are greater than upon this project, still the inducement of financial assistance is sufficient to attract to them good settlers who have not the capital necessary to build up a piece of raw land unaided. Under conditions as they exist, the Milk River Project cannot compete with such projects in the settlement of unimproved lands, which is vital to the success of the irrigation districts responsible for the repayment of costs.²⁶

The one answer to this problem so common to all the projects has been arrived at by each of the project superintendents. Each emphasizes the need for easier credit and advises the application of the funds so received according to the greatest need within his area. Whereas some believe the erection of buildings upon vacant farm tracts advisable, others consider breaking the sod and leveling the land, possibly seeding the first crop prior to settlement, the best method to insure success. But each of these suggestions for aid can be resolved into a need for, and a method of, providing easier credit according to the terms of the United States,—the preferred creditor.

²⁵ Ibid.

²⁶ Ibid.

The possibility of cheaper credit to be applied to the erection of farm buildings on vacant tracts warrants the optimism found in a statement from the superintendent of the Lower Yellowstone Project. "It is my opinion that the districts can meet their obligations under the present contracts. . . . The question of keeping up in the future is not to be met by a reduction of charges, but by doing everything possible to put the uncultivated land in shape, particularly by the erection of buildings, so that it will at least be rented, if not sold, and by keeping after new settlers with every means available."²⁷

Until the Government is prepared to aid the settlers in their first years upon the land, further settlement on the Greenfields Division of the Sun River Project in Montana should not be encouraged, according to Mr. Sanford, Superintendent of this project. He states: "The 80 vacant units should not be opened to entry until the Government can give some assistance to the new settler in getting the land ready for farming—at least breaking the raw sod."²⁸ This opinion is in harmony with the result experienced when similar work was carried out on a successful state project in California. Of this it has been written:

Farms with growing crops looked good to experienced settlers. There was an income in sight. When they looked at the grain and alfalfa fields, they saw feed for their stock. They saw money coming in to help meet the large expenses for improvements. On the land made ready for irrigation, they could begin to farm; that is, to do the kind of work they understood and enjoyed doing. Preparing land for irrigation is the work not of a farmer but of an engineer. Leveling fields and throwing up borders require a knack and a skill gained only by long experience; the work can be done cheaply and well only by an outfit of teams and implements that the small farmer cannot afford. To get farms with all or even a part of this preparatory work done was such a great boon to settlers that the improved farms were always the first choice.²⁹

The superintendent of the Minidoka Project believes that "unless some aid is provided in the form of pre-development or cheap credit for buildings, some of the leveling, etc.—an

²⁷ Letter from Mr. H. A. Parker, op. cit.

²⁸ Letter from Mr. George O. Sanford, op. cit.

²⁹ Dr. Elwood Mead, *Helping Men Own Farms* (Macmillan, 1920), 116.

indefinite period will be required for settlement of new lands—probably 20 years or more”³⁰ on the Minidoka Gravity Extension Unit. A Committee preparing “The Economic Report” on the Gooding Project (the Minidoka Gravity Extension Unit) in 1927 stated: “It is obvious that the settler could well afford to pay even more to have a part of his farm prepared than it would cost him to level it himself, provided this could be prepared and seeded prior to his settlement.”³¹ The need there for greater credit facilities caused them to observe:

Unless special measures are provided, settlers on the new lands will have only the ordinary credit facilities available to them and these are inaccessible during the early years, since at this time the value of the property, the settler can offer as security, is low. As has been brought out in the farm program, his greatest need for money is during the first four years of settlement, during which time his income is limited and his development and operating expenses are high. It was shown that he would need at least \$6100 to purchase equipment and livestock and to develop his holding to a “going concern.” Settlers with this amount of capital or with enough capital that the remainder can be made up through existing credit agencies are scarce. Credit of long, intermediate, and short length should be available during this early period and since loans would have to be made on limited security, contact would need to be maintained between the borrower and the loaning agency by an official capable of giving him sound agricultural and financial guidance and who would see that funds so loaned were used for productive investments.³²

The superintendent of the Milk River Project, finding that every improved place on the Chinook and Malta divisions of the project was being operated in 1928 reported:

At present practically all of the good farms of the project which are equipped with habitable buildings are occupied and the land cultivated. . . . The only remedy that this office can see for a continually increasing tax delinquency and an ultimate failure of the districts in meeting their obligations lies in the settlement of the project, which it is evident cannot be obtained unless some method is available for the finance of settlers.³³

Since settlers are obliged as a community to meet govern-

³⁰ Letter from Mr. E. B. Darlington, *op. cit.*

³¹ Economic Report and Reconnaissance Land Classification. Gooding Project, Idaho, by W. W. Johnston, G. H. Hogue, E. R. Fogerty, 64.

³² *Ibid.*, p. 76.

³³ Letter from H. H. Johnson, *op. cit.*

ment construction charges, it is essential that a full settlement of the under-settled projects be obtained to avoid the assessment of oppressive charges on the present settlers. Settlers on the Lower Yellowstone Project, as on the Milk River Project, will not be able to meet their contracted payments unless additional settlers can be obtained. Dr. Alvin Johnson remarked, concerning the present settlement problem:

I am personally far from convinced that the government can morally solicit settlement unless it is prepared to go much further than it now does in smoothing out the difficulties that beset the settler. . . . Either the Government ought to refrain from soliciting settlement, or it ought to create the conditions under which the settler has a fair chance of success. Of these conditions the provision of improvement loans is far the most vital.³⁴

TABLE I

The estimated expenditures for a new settler on the Sun River Project in Montana for the first three years are as follows:

	1st Year	2nd Year	3rd Year
House	\$700		
Barn	250	\$50	
Implement Shed.....	75		
Chicken House.....	100	50	
Granary		50	
Fencing	150		\$60
Well	25		
Breaking	75	75	75
Horses (4).....	300		
Harness	100		
Cows	75	(3) 225	
Hens	8		
Baby Chicks.....	12	25	25
Turkeys		10	
Hogs		25	
Machinery:			
Riding Plow.....		150	
Walking Plow.....	27		
Disc Harrow.....	R. 10		
Spike Harrow.....		30	
Wagon	130		
Hay Rack.....	15		
Mower		110	
Rake		57	
Cultivator	12		
Small Tools.....	50		

³⁴ Report on Economic Aspects of Certain Reclamation Projects, by Dr. Alvin Johnson, op. cit., 13.

	1st Year	2nd Year	3rd Year
Drill	R. 15	R. 15	R. 10
Separator		50	50
Depreciation on Machinery.....		50	50
Automobile	200		
Auto. Operation.....	150	150	150
Seed	150	22	60
Harvesting	113	65	40
Threshing	120	115	55
Hay	40	25	
Oats	75		
Ground Feed.....	25	10	
Miscellaneous	200	100	100
Taxes	25	25	25
Water Operation and Maintenance...	80	80	80
Construction	80	80	90
Furniture	350		
Living	450	450	400
Life Insurance.....	50	50	50
Sickness	50	50	50
Incidentals	100	100	100
Totals	\$4,387	\$2,294	\$1,470

Source: "Settlement and Development Problems, Sun River Project Montana," by George O. Sanford, Supt. See New Reclamation Era, Oct. 1928, p. 149.

CHAPTER IV

COÖPERATIVE DEVELOPMENT ON IRRIGATION PROJECTS

It is a matter of considerable doubt whether, despite the enthusiastic endorsement by the project superintendents, credit advances to settlers on Federal farms will alone prove as complete a solution of project difficulties as is promised and anticipated. Those well acquainted with the process of changing raw land into an improved irrigated farm which is to become a solvent business enterprise have found that liberal credit terms cannot alone produce this transformation. Dr. Elwood Mead, in his book entitled "Helping Men Own Farms," which so convincingly describes such a change effected in the Durham colony in California, has stated:

Generous loans of money are not of themselves enough. The profits of farming, even under the best conditions, are so small that the best kind of management, constant economy, and good cultivation are essential if a settler is to earn more than a living. In order to pay for a farm bought at the prevailing high land prices, one must bring the earning power of the land to the highest limit. To reach such limit necessitates coöperation in buying and selling. It necessitates group settlement with the resulting hope and courage in the hearts of many families living in the same manner and battling against the same obstacles.¹

From this it would seem, then, that in addition to a need for the benefits which will attend more lenient credit terms there is a need on the projects for a closer understanding among the settlers, for greater coöperation, for group settlement. This will never be realized until a conscious effort is made to develop it. Coöperative effort of this nature, while altogether possible in the compact reclamation areas, and by no means a new concept in irrigated agriculture either in this country or abroad, has been afforded but little trial on Federal projects.

There are among the projects some which, though having been authorized within the first five years after the Reclama-

¹ Op. cit., 182.

tion Act was passed and opened for entry soon after, have never had any real or permanent coöperative interests among the settlers. Others have set up their first common undertakings within the last few years and are only now beginning to reap benefits which had heretofore been unexperienced. Such records as these are in considerable contrast to conditions on the Durham Settlement which was originated under the California Land Settlement Act of 1917. There, in the Durham Colony within a period of three years an organization of settlers, through community action and coöperation, had been built up that warranted the statement by Dr. Mead in 1920 that "The Durham Settlement is no longer an experiment. It is a solvent undertaking which should be a valuable example for the rest of the country";² and at the same time "the growth of the coöperative spirit in the Durham Colony has been one cause of its success."³

Activities at Durham were in part modeled after the Australian farm colonies, the experience of which had brought out very emphatically the value of grouping settlers. With the settlement so planned, it was found that "larger yields, better stock, and better homes over a large area, created a pride in the country on the part of the people who lived in it, that could never have been built up by scattered individual farms, no matter how good they were." And again, in still further support of organized colonies, we read:

There are other reasons why group settlement will succeed, when settlement of isolated individuals will fail. Economies in development, such as building houses and preparing land for irrigation, are only possible where settlers are grouped. The advantages of group settlement do not end, however, when people are on the farms. Coöperation and organization in buying, in selling, in education, and in social matters, produce results which would justify group settlement even if there were no other advantages.⁴

The Durham project was framed along these lines by those who held a sincere belief in the validity of the doctrine outlined. Settlers were given help in planning and building their houses and other farm buildings. Land was prepared for irrigation and the first crop seeded before the settler took

² Ibid., p. 187.

³ Ibid., p. 141.

⁴ Ibid., p. 90.

possession. The people of the community, through a development of a real coöperative spirit, were brought to think and work together. A Coöperative Stock Breeders' Association, a community cold storage plant and a community social center were a few of the organizations which made group action possible and profitable. However, much credit was due the efforts of the California Land Settlement Board and the Superintendent of the Durham settlement in urging the creation of these community enterprises and in guiding them in their successful development.

In contrast to the supervised development of the Durham settlers, there is the unaided growth of reclamation areas where whatever coöperative measures have been undertaken have been instituted through the leadership of the settlers themselves. Needless to say, little has been accomplished when the entire development is entrusted to the individual farmers, who place the immediate problems of their own farms above the demands of the project. Few of them realize that the success of the project as a whole is necessary for their own permanent success.

With this in mind, an inquiry was made into the community organization and social fabric on several Federal projects, by which it was hoped to secure a record of the extent to which such organization has been created, and the length of time necessary to create a demand therefor. The findings in an inquiry of this nature, surveyed in contrast to the directed community development which had been perfected on the Durham project in a period of three years, should serve, it seems, as proof that group action and community spirit are necessary and advisable for rapid and sound economic development.

The Sun River Project.⁵

The Sun River Project is located in the north central por-

⁵ The writer is especially indebted to Mr. George O. Sanford, Superintendent, Mr. and Mrs. J. E. Hancock of the Fort Shaw Division, and Mr. Wallace Murdoch of the Greenfields Bench, for information concerning the Sun River Project and its coöperative organizations.

tion of Montana. It was authorized early in 1906, and construction of the Fort Shaw division of the project was begun the same year. Public notice was served on the Fort Shaw division in 1908 and water was available in 1909. This division comprises an area of 13,765 acres, approximately 7,000 of which are irrigable and divided into 212 farms.

The construction of the canal system for the irrigation of the Greenfields division was started in 1913, and works have been completed for the irrigation of 42,000 acres at a cost of \$4,000,000. Although public notice has not yet been served on this division, water has been supplied on a rental basis for the irrigation of the farms since 1920. The 326 farms on it cover an area of approximately 40,000 acres, all of which are irrigable.

Wheat is the principal crop on both divisions of the project, although the land is well suited to growing sugar beets, seed potatoes and other high-income crops. The principal Northwest markets are made available to the project settlers through good highways and adequate railroad facilities. The average crop value per acre in 1927 was \$17.59 on the Fort Shaw division and \$12.51 on the Greenfields. Construction costs repayable by the Fort Shaw settlers have been fixed at \$57 per acre, and this indebtedness to the United States is being promptly met by the irrigation district formed on the Division. Final construction costs have not been announced on the Greenfields Division but will probably be about \$100. Irrigation districts organized on both of the divisions have contracted with the United States to repay these, the Fort Shaw Division on the 20-year repayment plan, and the Greenfields, under the crop production plan.

In spite of the fact that the Fort Shaw unit of the Sun River Project was one of the first opened for settlement by the Bureau of Reclamation, it is one of the least organized areas of any of the Federal projects. Pendulum-like, coöperative endeavor has prospered and waned with general agricultural prosperity and depression. For example:—a cheese factory started in 1912 and credited with being the first cheese factory in the State, failed through a lack of organiza-

tion among the coöperators, and their inability to secure a market for the product. An equity association, intended as both a buying and selling coöperative, operated with success for several years. A cow-testing association working in harmony with the county agent, enjoyed an era of prosperity, only to fail in the years of general agricultural depression in 1922-23.

Only one organization, the Neighborhood Club for Women, has maintained continuous organization since its inception in 1911. This club, acting as a women's study club, includes as its members all the women of the Fort Shaw Division. In addition to the general purpose for which the club is formed, it has provided until most recently the main-spring of all social activity in the community. Through this organization, two community libraries are maintained, picnics are arranged, flowers are sent to the sick and an annual flower show is held. The spirit of friendliness and good feeling that this club has developed among the project women doubtless had some influence in creating the Farmers' Club which was organized early in 1927. The Fort Shaw Farmers' Club included in its membership all the settlers of the unit. While its activities at the present time are mainly social, it has carried on, in the past year, some minor coöperative activities,⁶ and it is hoped it will develop into a competent business representative of the Fort Shaw Unit. Through the combined efforts of the Farmers' Club and the Neighborhood Club, a community club house and kitchen is being furnished and equipped, which is free as a gathering place to any group which may desire to use it, and will doubtless serve as the origin of a real community center for the division.

Other groups, such as the 4-H clubs for boys and girls, lodges, and women's clubs, are successful and active, but up to the present time no organization representing the entire district, except the Water Users' Association, has developed

⁶ Through the combined efforts of the Fort Shaw settlers, operating through the Farmers' Club, graveled road work was completed on the project during the year 1928, individual petitions for which, it was felt, would probably not have been recognized.

which serves as a business mouthpiece and one from which mutual help can be derived from coöperative projects undertaken.

The Greenfields Division of the Sun River Project has even fewer examples of community activities than are found on the Fort Shaw Division. Other than the Water Users' Association, there is no organization, either business or social, which takes in all the settlers of the entire area. This division, too, has experienced similar failings of coöperative interests which were at one time active. A cow-testing association, organized as a part of the county association, now has only a few members. An equity association, begun in 1914-15, corresponding to that of the Fort Shaw unit, failed in the years of general agricultural depression. At the present time, there is but one active community interest, the Community Club, which was organized in March, 1928. Its membership includes settlers on only one part of the division, and its purpose is primarily social. However, its existence may serve as a nucleus which may in time spread to include all the settlers of the division and provide a coöperative representative for the Greenfields section.

Although, as is seen from this account, the opportunities to coöperate are few, the willingness on the part of the settlers to work in association with one another is illustrated by their readiness to partake in the benefits of the Teton Colony wool pool and the turkey pool which have been organized through the efforts of the county agent. It is felt among the producers of these products who have joined in the county measures, that considerable benefit has been derived which they, as individuals, could not have procured had they alone been dealing with the buyers.⁷

*The Belle Fourche Project.*⁸

The Belle Fourche Project in South Dakota is one on which there has been quite as great a lack of coöperative

⁷ Settlers who sold their turkeys through the Teton County turkey pool were able to receive 40c. per pound in 1927, while 25c. per pound was the top price paid other producers.

⁸ The data concerning the state of coöperative activities on the

activities as on the Sun River Project. This project was authorized in 1904, and first public notice was issued in 1907. Although it possesses a total irrigable acreage of 74,570 acres, only 36,260 acres were irrigated in 1926. This area is divided into 580 farms having a population of 1580. The population of the four towns of the district numbers 760. Grain, hay, sugar beets and potatoes are the principal crops produced, and transportation facilities are such that Omaha and Chicago, in addition to the local towns in the Black Hills, are the principal markets. The average crop value per acre was \$18.44 in 1926. A repayment contract on the crop-production plan has been entered into by the settlers with the United States Government, such that the construction cost repayable by them will amount to \$43.15 per acre.

At the present time, there is one coöperative activity on the project, the Vale Coöperative Store, organized in 1919, which serves approximately one-tenth of the project area. Even it is regarded as not very prosperous and, it is feared, may be forced to discontinue activities from lack of support, as were the coöperative stores of Newell, Nisland and Fruitdale. All of these were started in 1919, and they have ceased activities within the last three years.

Two groups, the Vale Farm Bureau and the Farmers' Union at Nisland, although now chiefly social organizations, may be looked to as the source of community activities in the future; but the experience of the Belle Fourche settlers with coöperative dealings in the past will probably delay such action for some time to come. In addition to the three unsuccessful coöperative stores previously mentioned, a coöperative creamery was in operation at Newell in 1915-16. A coöperative cannery was attempted at Vale in 1918-19 and three community Threshing Associations served the settlers from 1918 to 1921. Each of these was forced to discontinue its activities either from lack of support or from lack of marketing facilities.

Belle Fourche Project was supplied the writer in a letter from Mr. F. C. Youngblutt, Superintendent, in November 1928.

At the present time, needs of the project seem to be adequately met by the commercial enterprises which have become established and which are receiving the support of the settlers. A sugar factory, three pickle salting stations and various other industries have entered the project within the past few months.

In contrast, however, to the lack of coöperative undertakings, social life on the project is active, with community clubs in three of the four towns, five women's clubs, eleven girls' 4-H clubs and four boys' 4-H clubs. In social activities it would seem that the project is amply cared for, and out of the benefits resulting from these it may be hoped there will follow a realization that coördinate benefits are to be obtained from coöperative buying and selling.

The lack of community action at the present time on the Belle Fourche project may be attributed, in large part, to the fact that there has been almost a complete exodus from this project of the settlers who took it up first and, in many instances, settlers who borrowed money and gave first mortgages on their farms, have seen the mortgagees take over their property. Yet it is believed that had there been a community development and a feeling of common dependence existing among these first settlers, many of these tragedies could have been averted. To prevent a recurrence of such a situation on the project, a need is felt at the present time for organizations which would represent the settlers' interest in the production of various products. For example, it is the opinion of the project superintendent that the "Belle Fourche project farmers should have better means to market their dairy products. At the present time," he states, "there is enough cream shipped from Newell alone to keep two creameries in operation. Increased attention is being given to further promote the dairy industry of the project and it is entirely possible that dairy manufacturing will accompany any advance made in this connection."

*The Lower Yellowstone Project.*⁹

The Lower Yellowstone Project, in southeastern Montana, has at the present time perhaps a greater number of group interests than either the Sun River or Belle Fourche project—this in spite of the fact that such interests were slow in their inception. It was authorized in 1904, and first public notice was issued in 1908. It contains an irrigable area of 58,250 acres, 32,330 of which were under irrigation in 1926. There are 471 irrigated farms on the project with a population of 900.

The principal crops raised on the project lands are grain, hay and sugar beets; and Minneapolis, St. Paul and Duluth are the principal markets for the products.

Although the Lower Yellowstone Project has been open for settlement since 1908, no coöperative organization which covered the entire project was formed until 1925. At that time the Montana-Dakota Beet Growers' Association was formed. It has served to represent the growers' interests in their relations with the sugar company, but it does not deal with the marketing of the beets.

Before this time, various coöperative organizations, covering only a part of the project, had been effected,—the Farm Bureau in 1917 which serves two-thirds of the project; a Dairyman's Association in 1924, in which approximately one-third of the project joins to obtain better prices for dairy products; and three Farmers' Coöperative Elevators organized in 1915-16 at Sidney and Fairview, Montana, and at Dore, North Dakota, which serve one-third, one-fourth and one-fifth of the project area, respectively.

A Farmers' Coöperative Creamery was operated at Sidney from 1913 to 1914, and a Coöperative Store was active from 1915 to 1919. Similarly, a cheese factory operated at Fairview from 1925 to 1927; but all of these enterprises were unsuccessful by reason of a lack of products or poor management.

⁹ Letter from Mr. H. A. Parker, Superintendent of the Lower Yellowstone Project, November 1928.

Previously organized coöperative elevators and grain companies suffered likewise and were forced to discontinue their activities in 1926-1927.

Social organizations here are again more highly developed than the business interests. There are several town organizations which serve the interests of the farmers, as well as women's clubs and Home Demonstration Clubs which are active in the various centers.

But here again, as on the Sun River Project and the other projects in which there has been at best only a slow development of community feeling, and at the same time a slow return of government expenditures, it is felt that a more prospering condition would exist if the settlers were taught to think and work together.

*The Okanogan Project.*¹⁰

The Okanogan Project in Washington was authorized in 1905 and opened for settlement in 1908. Most of the land is planted in orchards. It has no purely coöperative organizations. The project superintendent writes concerning this: "Every attempt to organize and hold together such an organization here has met with failure. Most all of the water users are now skeptical as to the results and benefits secured by such an organization." Yet there are some enterprises which are partly coöperative, for example, the Okanogan Growers' Union organized in 1914 and serving approximately one-fourth of the project area, and the Growers' Warehouse Company which was organized in 1923 and represents about one-eighth of the project. Both of these concerns were organized as coöperatives but have since become individually-operated enterprises. Mr. Casteel has stated in reference to them, "The present warehousing concerns are all organized and owned by individuals for profit and are adequate to the needs of the settlers. They finance the grower, furnish him most of his orchard supplies, sort, pack, warehouse and sell his

¹⁰ A letter of November 1928 from Mr. Calvin Casteel, Superintendent, supplied information concerning coöperative organizations on the Okanogan Project.

crop." It would appear that on the Okanogan Project the problem of representation for the growers' interests had been solved by the efficiency with which the private concerns are operated.

*The Riverton Project.*¹¹

The Riverton Project in Wyoming is a comparatively new project. It was authorized in 1917 but water was not ready for any considerable body of land until 1927. Of the total irrigable acreage of 9,000 acres, 280 acres were irrigated in 1926. Settlement of the project has proceeded very slowly; in 1928 there were only sixteen settlers on the project, and these were widely scattered. As a result, naturally, there are no social or coöperative organizations of any sort of strictly project origin. However, there are several county coöperative enterprises in which the project settlers may join. The project superintendent wrote, in October, 1928: "Some three or four years ago a turkey marketing association was organized in Fremont County, Wyoming, in which the Riverton Project is located. This organization has been successful in raising the price paid for turkeys about 10c. per pound and has been remarkably successful in every way. Some turkeys from our project have been marketed through this association." Recently, a potato marketing association, a bean association, a farmers' wool pool and a livestock marketing association have been organized. These organizations will be available to the Riverton Project as soon as the settlers are in a position to take advantage of them. At the present time wells for domestic water supply are needed on the project. This is a need which could well be met by coöperative action. In reference to this, the project superintendent stated: "Just at present there is a movement on foot to try to coöperate for the drilling of wells for domestic water supply. No organization has been effected, however, and none is proposed and I am as yet unable to state whether there will be any results from the attempt."

¹¹ In a letter to the writer of October, 1928, Mr. H. D. Comstock, Superintendent, described the coöperative organization of the Riverton Project.

In considerable contrast to the unorganized conditions typical of these projects, there is the organization, resulting in a spirit of group interest and community action, which has obtained on several of the Federal reclamation projects during recent years. The Orland Project in California and the Minidoka Project in Idaho are typical, and serve to illustrate the immediate benefits which result from coöperation in buying and selling, and in thinking and working together.

*The Orland Project.*¹²

Situated in a state in which there has been a greater development of successful coöperative ventures than in any other state, and hence a greater confidence in their benefits, the Orland Project, "the project of no regrets," has experienced successful group action in many different lines continuously from the time when it was originally opened for settlement in 1910. The Orland Almond Growers' Exchange and the Orland Olive Growers' Association have been operating since 1915. The Orland Orange Growers' Association and the Orland Apricot Growers' Association were organized in 1920 and the Orland Fig Growers' in 1922.

The Almond Growers represent approximately 1200 acres of the project area, while the Olive Growers serve 150 acres. The Orange and Apricot Growers represent 300 and 550 acres, respectively, and the Fig Growers market their product for 250 acres of project land.

"These," the project superintendent writes, "are all successful, particularly the Almond and Orange Growers. The Fig Growers are the least successful, due to keen competition with other fig-growing sections of California."

Only one coöperative project organization has been unsuccessful. This was the Farm Bureau Lumber Marketing Organization, which was active from 1918 to 1920, but was unable to compete with commercial lumber yards.

Although the existing organizations seem to adequately

¹² Data concerning coöperative activities at Orland were furnished the writer by Mr. R. C. E. Weber, Superintendent, by letter of October, 1928 and by several booklets and pamphlets.

serve the needs of the project settlers at the present time, Mr. Weber, the project superintendent, feels that "there will be need for more local coöperative marketing organizations, dealing with special crops produced on the project, when the output becomes sufficiently large to warrant them."

Social life on the Orland Project is similarly well organized with three Farm Centers, active since 1920, and numerous clubs and unions, embracing the entire project in their activities.

*The Minidoka Project.*¹³

The Minidoka Project, in Idaho, embraces a large part of two counties and includes six towns, several of them fairly large. Burley, the county seat of Cassia County, has a population of about 5,000, and Rupert, the county seat of Minidoka County, has a population of about 4,000.

Probably the largest and most active coöperative on the project is the Mini-Cassia Dairymen's Association. A cream pool operated by this organization serves to establish a more direct relationship between the producers of cream and the consumers of butter, to reduce overhead charges in manufacture and to obtain for the members any advantages that the market may afford. "It is believed by the members that they will be able, through handling of the cream on their own account and the sale of butter through their marketing organization, to secure to themselves the profits on butter-fat that have been going to outside concerns."¹⁴ The cream is manufactured into butter at the Jerome Coöperative Creamery and this in turn is marketed through the Challenge Butter Association of Los Angeles, which is owned by fifteen coöperative creamery associations.¹⁵ The Mini-Cassia Dairymen's Association recently started a casein plant at Burley and is now

¹³ A letter of November, 1928 and articles describing Minidoka activities were sent the writer by Mr. E. B. Darlington, Superintendent.

¹⁴ "Cream Pool Established Recently on the Minidoka Project, Idaho," by E. B. Darlington, Superintendent, Minidoka Project, in *New Reclamation Era*, August 1926, p. 136.

¹⁵ *Ibid.*

paying the farmers \$1000 per day for cream and milk received.

The poultry industry has been made dependable through a coöperative known as the Idaho-Oregon Poultry Association, a branch of which operates on the Minidoka project. Semi-monthly egg pools have been arranged, the eggs being shipped to a candling plant at Twin Falls, Idaho, where they are graded, bulked in car lots and put on the market.¹⁶

A further development of the poultry business has been the operation of the turkey pools through a local branch of the Idaho Turkey Growers' Association. The birds are collected, picked, graded and shipped in carload lots, mostly to eastern markets. Much better prices have been obtained by the growers since the association was formed in September, 1925. In April, 1928, Turkey Anti-Theft Associations were formed in the two counties, for the joint protection of the members from losses by stealing.¹⁷ Wool pools are conducted in Minidoka County, and a lamb pool has recently been organized in Cassia County. Several livestock associations are maintained to promote improvement in livestock standards. These coöperative efforts have been found to work out profitably to the participating members.

A coöperative, known as the Mini-Cassia-Honey Producers Association, promotes and protects the interests of bee-keepers in Minidoka and Cassia counties. There are about 35 producing members. The functions of this organization include buying bee-keepers' supplies in carload lots and marketing honey in carload lots. Marked benefits along both these branches of the business are claimed to have been obtained by the members since its inception about five years ago. Another important purpose served by the organization is the control of bee diseases. Bee inspectors, one for each county, appointed by the State Commissioner of Agriculture, on recommenda-

¹⁶ See for a description of the present organization the article "The Boise Project and the Hen," in the *New Reclamation Era*, June 1927, p. 90.

¹⁷ See the *New Reclamation Era* for August 1928, p. 122, "Turkey Anti-Theft Association on the Minidoka Project, Idaho," by E. B. Darlington, Superintendent.

tion of the Association, examine the broods frequently and take such measures as are necessary to prevent the spread of contagion.

The Cassia County Bee Growers' Association is an organization of sugar beet producers, formed for the purpose of guarding the interests of the growers in their relations with the sugar company. The association does not deal with marketing, since sugar beets are sold directly to the Amalgamated Sugar Company on standardized contracts made with the farmers.

The Cassia County Potato Growers' Association no longer functions as an active coöperative, as the storage of potatoes is a large factor in the marketing problem and the numerous commercial warehouses appear to afford the best facilities for handling this commodity. Also, a coöperative cheese factory at Acequia, in Minidoka County, suspended operation some time ago, principally for the reason that the patrons considered it more advantageous to sell their cream through the Mini-Cassia Dairyman's Association.

Coördinately with the organization of coöperative enterprises to deal with special crops, there has been a well-rounded development of social and civic organizations on the project, including a chamber of commerce at Burley, a community club at Rupert, Rotary Clubs, lodges, women's clubs, granges, several troops of Boy and Girl Scouts, and Camp Fire Girls. Without a doubt, the coöperative system, as it has been applied in its fullest meaning, has proved a healthy success on the Minidoka Project, causing it to be one of the most productive and prosperous agricultural areas developed by the United States Government.

The preceding pages aim to emphasize the fact that the irrigation community must be a coöperative community if the best results are to be secured. Through the introduction of the coöperative factor, by which residents are frequently brought together and from which social development ensues, the building up of a community spirit results. Development by this means has only slowly been experienced on Federal reclamation projects. On the majority of the proj-

ects, and, with the exception only of the Orland project, of all of the projects here discussed, ten to fifteen years from the time of first settlement have been required to establish successful coöperative enterprises. An equal period of time has been necessary to develop most of these projects to a position in which they might claim successful agriculture. And although a hard and fast rule cannot be made, it is generally true that the projects having the fewest coöperative interests are likewise the least profitable from the point of view of both the Government and the individual settler.

It is time that home and community building should be given a share of consideration, for, as Dr. Alvin Johnson observed,

The times have changed, and the only significant objective for reclamation policy today is community building. It is essentially a far more important objective than that of the earlier period. One who has seen what the older and more prosperous reclamation divisions have accomplished can easily conceive of the several projects as splendid cases of wholesome and prosperous rural life, contributing invaluable social benefits to their commonwealths. Reclamation is a policy immensely worth continuing, if it moves forward, as the times require, from its engineering achievement to equally distinguished achievement in the art of community building.¹⁸

A striking example of the rapidity with which project success can be developed under careful financial and managerial supervision is illustrated by the Bynum Irrigation District, a private project, located in northern Montana. The total area of the District includes 29,000 acres, 22,000 of which are irrigable. There were 12,000 acres in crop in the season of 1928.

The chief cash crop to which the land has and is now being adapted is wheat; but the luxuriant growth which can be obtained in both alfalfa and clover should cause these crops to be valuable in themselves and also as feed for livestock. Sugar beets, in limited acreage, are also included in the crop schedule for the future development of the District.

Aside from favorable physical qualities, there are other and more important features which contribute largely to the

¹⁸ "Report on Economic Aspects of Certain Reclamation Projects," by Dr. Alvin Johnson, *op. cit.*, 16.

present success of the Bynum District and its place of interest in the present study. Realizing that a close relationship must be maintained between the construction of an irrigating system and the productive development of it, the Northwest Agricultural Company, organized for the economic development of irrigation districts, started its operations on the Bynum District during the season of 1927, and began to settle the lands and increase the productive acreage. In the short period of time during which it has been operating, the Bynum Irrigation District, in the estimation of agencies coöperating in its settlement and development,¹⁹ has become the outstanding opportunity for colonization in that section of the Northwest. This result has been achieved because an active supervisory agency has taken charge of the settlement and farm development work.

Development, measured in terms of crop acreage on the project, saw an increase from 2,500 acres in 1926, to 7,000 acres in 1927, with 12,000 acres in 1928. The farm population, within a radius of four miles of Bynum, has increased from 50 to 200; there has been an increase in the number of dairy cows from 40 to 200, and a considerable increase in the number of sheep. Accordingly, with the progress of the 1927 season as a basis, a financial outline for a three-year farm development program was constructed, on which the District is operating at the present time.

The program implies an intimate coöperation between the financing-developing corporation and the settler on the land. Under the terms of such a program, it has been found that the annual cash advances of the Developing Corporation for a 160-acre farm unit, for permanent improvements and for farm operation, will amount to \$1,358, \$1,253, and \$630 for the first, second and third years respectively, a total of \$3,241 to each settler. The amounts available from cash crop returns, to apply on this indebtedness, should amount to \$1,130, \$2,150, and \$2,733 for the same three years. The result is

¹⁹ Railroads assist largely throughout the West in the settlement of such districts through the efforts of their colonization agents.

an unpaid balance of \$228 for the first year, a net balance of \$669 for the second year, and a net balance of \$2,100 for the third year. With these results, from the standpoint of the financing and managing corporation, the amount of credit extended will be \$1,358 per farmer during the first year, or \$8.50 per acre; the peak of credit extension will come during the second year—\$1,253 plus \$228 carried from the first year—a total of \$1,481 per farm or \$9.25 per acre; this will be fully liquidated, however. During the third year the credit extension will be much smaller, \$630 per farm to be readily liquidated.

It is believed that, with competent financial and managerial ability, a three-year program such as this can easily be carried out and will put a district in a paying condition, assuming of course that the right kind of settlers in sufficient numbers are available. In forecasting the project's solvency it was stated:

With sufficient funds available, the entire project can be settled up during the years 1928 and 1929, with a gradual liquidating retirement from the field after the year 1930. No further need of any financial assistance for development work should be necessary after 1932, when the District as a whole may be expected to be fully self-sustaining. The outstanding result from an active settlement program is an annual farm production sufficient to enable the District to discharge its indebtedness. The indirect benefits from such a condition of the district might be considered sufficient to warrant the expenditure of development capital even if all funds so employed were not fully repaid by direct results.²⁰

Here again, as with the Durham Project, it has been stated that "a financial program alone is not sufficient however. It must be coupled with practical management from the standpoint of the business requirements of the district as a whole."²¹ It is realized that "the adequate financing of operations under supervisory management will make possible

²⁰ From an unpublished report written by Mr. D. P. Fabrick, the district manager, entitled: "The Essential Need of an Organization of Financial and Managerial Ability to put a New Irrigation District on a Paying Basis." The facts here reported, concerning the Bynum Irrigation District, were obtained from his paper and from a personal visit to the project.

²¹ Ibid.

smaller equipment cost and larger production, both resulting in lower production costs.”²² With the accomplishment of these results in view, such a supervisory management has been established²³ which is actively engaged in carrying out the policies agreed upon that should produce rapid solvency of the farms and of the Bynum District.

It is seen that one of the first functions of a development company is to supply settlers with necessary living accommodations, equipment and livestock. Accordingly, provision is made in the farm development program that, of the \$3,241 advanced to each settler, \$1,236 will be expended for Real Estate Improvement of a permanent character, such as buildings and fences; and the remainder of \$2,005 will go as operating capital for the purchase of seed, livestock, power equipment fuel, feed, etc. The developing company willingly advances the building material necessary for the farm buildings and assists the settler in deciding upon a plan of construction. But each settler either builds his own house or provides funds for its construction. By such a provision, each settler has an equity in his home and farm buildings and a vital interest in the development of a farm organization to which he is being so liberally aided. To insure the settlers an economical supply of lumber, an agreement has been made with the local lumber company, through the efforts of the project manager, to supply the developing company with lumber on liberal terms. Furthermore, a sawmill has been purchased by the developing corporation which is located twenty-five miles west of Bynum. It is found that by doing his own logging and hauling, the farmer can reduce the cash requirement for his lumber from \$40 per M. to \$10 per M.

An additional scheme, and one which appears to be unique in community developments, is the system of labor exchange

²² *Ibid.*

²³ It is impossible to stress too greatly the important work being done by Mr. Fabrick in the successful management and development of the project. His expert knowledge, practical skill, resourcefulness, tact and enthusiasm all make him invaluable in developing the Bynum Irrigation District on a scientific and profitable basis.

which has been worked out on the Bynum District. The developing organization, acting as a clearing house for all the surplus labor capacity of the individual members of the colony, has, by this means, created values equal to several times the amount expended. It is estimated that the work done at Bynum last year, if paid for as commonly done by farming corporations at the customary charges for such work, would have cost at least twice as much, and in individual instances, three and four times as much as was expended by the developing company. To explain the operation of the labor exchange, the project manager has stated:

One particular instance to illustrate this clearing house operation for labor is the case of two farmers, both owing us an account for advances made. Farmer A., who is a good tractor man and is well equipped, needs to have a house built. Farmer B. is a good carpenter but has no power equipment for breaking sod ground. Neither can afford to hire the work done at the customary wages, without having the cost therefor advanced by the Development Company. But Farmer A. will plow the ground for Farmer B. and receive credit therefor upon the account owing to us, while we charge the same amount to Farmer B. Farmer B. will build the house for Farmer A. and receive credit upon his account with us, while the cost is charged to Farmer A. In this manner \$1,200.00 worth of work was accomplished on the two farms without additional cost expenditure. Again in the case of Farmer A. who is well equipped with farm machinery. We have had him break land, giving him credit for \$4.00 per acre, as the price for breaking land is \$5.00 per acre. Thereby we have created an additional value of \$5.00 per acre to be reflected in the sale price of the land, at a cash outlay of only \$1.00 per acre.²⁴

It is realized that since labor is the principal or the only asset of the farmer during the first period on a new project, "by establishing a clearing house for this asset, it becomes possible for him to pay for much improvement by labor and require a correspondingly smaller amount of capital."²⁵ With special reference to the Bynum District, the project supervisor concludes: "From the experience of the past season, it may be stated that through the operation of a central financing agency, it becomes possible to accomplish from two to four times as much with a given amount of capital as is ordinarily possible with an individual farm or a

²⁴ Report by Mr. Fabrick, op. cit.

²⁵ Ibid.

number of individual farms.”²⁶ It is fully realized that the success of a plan of this sort is dependent upon the closest supervision of every detail and an understanding of the individual ability of each settler.

At the end of the season in 1928, the Bynum Project had about one-half of the future total number of settlers and was approximately one-half developed. Twenty settlers came to the project during 1927 and twenty more bought land in 1928. The problem of securing settlers, a matter of most vital concern on Federal reclamation project, may be considered solved on the Bynum district, for although there has never been so much as 5c. in the developing company's budget for advertising, more settlers are now applying than they wish to accept. The credit advances available under the financial program are in large measure responsible for this, but an even more important factor is the supervisory management which aims to make development funds repayable out of development results. The project manager believes that, without difficulty, settlers could be found to take up the entire area remaining vacant in the season of 1929. However, rather than effect a too rapid completion of the project, a plan of slower development will be continued. This policy has been adopted on account of the savings which it permits in the purchases of power equipment for the farms. Although it is intended that each farm shall maintain its individual character, still to obtain efficiency in the development of all, it has been found profitable to develop and operate each as a part of a consolidated program. To this end, it has been found that the equipment cost for all of the farms can be lowered by allowing one outfit of equipment, especially the larger power machines necessary for breaking of raw land, to two, three or more farms. There is on the project at the present time a sufficient amount of such equipment to break and seed the area for twenty new settlers. Hence, by limiting the 1929 settlement to this number, the danger of over-equipment is avoided which would attend a placing of forty new

²⁶ Ibid.

settlers on the District. The project manager observed, in adopting such a policy, that "an unbalanced condition quite general on farms is the large real estate and equipment investment and the comparatively small amount or lack of operating capital, resulting in a production far below the capacity of the farm."²⁷

The settlers have been led, through the efforts of the project manager, to deal coöperatively in other ways, to their mutual benefit. By pooling their demands for twine, they purchased 8,000 pounds at a reduced price in 1928. As previously mentioned, lumber is secured at reduced cost, and a like arrangement has been made with an elevator company which advances seed to settlers, the account being payable at the time of harvest. In the interests of weed control, a tax of 5c. per acre is levied on each settler of the district.

In addition to the careful attention given the economic policies of the District, as evidenced by the foregoing, the artistic side has been given consideration. Thirteen thousand trees were set out on the project farms during the season of 1928. The settlers made their own plans for "shelterbelts" or windbreaks, and submitted these to the district manager, who ordered the trees for all. The trees were planted by the settlers themselves,—a provision similar in intent to that of having the settler build or provide for building his own house. He thereby possesses an active interest in their growth and a genuine concern in their care. It is the plan of the developing company to set out within the next year rows of trees on either side of the "Park-to-Park" highway which crosses the project, leading into the town of Bynum. And again, by bringing the wheatfields to the very edge of town, it is felt that a greater feeling of unity between the town and project will develop—the project looking to the town as a civic and community center, and the town looking to the project for the success of its economic life.

While it is realized that there is much in the developing program of the Bynum District that cannot be applied to

²⁷ Ibid.

Federal reclamation projects, yet the fundamental problem is the same; for, as expressed in the words of the Bynum district manager, "the whole problem is one of human nature." It is a problem of creating a contented prospering community.

The results which have been achieved in so short a period on the Bynum project, but which have been so conspicuously lacking on the Federal projects, have arisen on the former on account of the efforts of a financing and supervising agency. The fact that these services are lacking to Federal reclamation projects is in large part responsible for the slow and insecure development they have thus far achieved.

CHAPTER V

LEGISLATIVE EFFORTS TO PROVIDE AIDED AND DIRECTED SETTLEMENT FOR FEDERAL RECLAMATION

On account of statutory limitations, the Federal Government has not had the liberty to make use of the policies of aided and directed settlement as freely as have the private projects reviewed in the preceding chapter. But with the Federal policies under the guidance since 1924 of Dr. Elwood Mead who was instrumental in initiating the plan of development on the Durham Project, there has been a gradual development toward the adoption of some measure which might serve as an effective trial on the Federal areas of financial aid, proposals for which are outlined in Chapter iii; and direction in economic development, the theme of Chapter iv.

The Fact Finders' Commission, of which Dr. Mead was a member, submitted in 1924 three recommendations, which cover the points here considered. They were: the provision for a wider dissemination of agricultural knowledge among the water users on the Federal irrigation projects; the provision for agricultural and economic advisers who will give sound agricultural and business advice to enable settlers to increase their farm incomes and to organize for coöperation in business and social affairs; and the provision for a credit fund for farm equipment and permanent improvements.¹

Neither the Fact Finders' Act, passed December 5, 1924, nor subsequent legislation which has been passed to carry into effect the findings of the Special Advisers, has contained provisions which validate these three recommendations. In 1925 a bill² was submitted in both the Senate and House on which hearings were held in the respective committees on Irrigation

¹ Recommendations Numbered 28, 29 and 31 in the Report of the Special Advisers. Senate Doc. No. 92, 68th Cong., 1st. sess., 8-9.

² S. 4151, H. R. 11171 and H. R. 12083, 68th Cong., 2d sess. Hearings were conducted before the Committee on Irrigation and Reclamation, House of Representatives January 28, February 6, 9, and 18, 1925.

and Reclamation, which provided for aided and directed settlement on proposed Government irrigation projects. The principles embodied in this bill purposed to bring into operation recommendations 28, 29 and 31 of the Fact Finding Commission.

However, owing to fear that it would involve the Government in a large expenditure and the provision that it would apply only to new reclamation areas rather than serve as a rehabilitation measure for existing projects, the bill was never brought to a vote.

In January 1928, a second bill³ was submitted, aiming to carry out the fundamental provisions of the 1925 measure; namely, to provide for aided and directed settlement on Federal reclamation projects, but more restricted in its field of application than the previous measure had been. The recent bill authorizes the Secretary of the Interior to advance not to exceed \$3,000 on account to any one farm for effecting necessary improvements. These improvements, it is specified, may include preparation of land for irrigation, development of stock and domestic water supply, erection of dwellings and other farm buildings, and improvements of a permanent character. The Government advances are not to exceed 80 per cent. of the value of the improvements, while each settler makes an initial payment to the United States of 20 per cent. of the cost of the improvements. All sums advanced are to be refunded to the United States with interest at the yearly rate of 4 per cent. in semi-annual amortized installments in not to exceed 28 years. In case of default on the part of the settler to comply with any of the terms of his contract, it is provided that the settler shall forfeit all rights to his property, and all payments, theretofore made, are to be considered as rental paid for occupancy. Title, both to the land and to the improvements, is thereby forfeited to the United States. The sum of \$500,000 from the reclamation

³ S. 2829 and H. R. 9956, 70th Cong., 1st sess. Hearings before the Committee on Irrigation and Reclamation, House of Representatives February 16, 1928.

fund is appropriated for the purpose of carrying out these provisions.

As it came up for hearing before the Committees of Congress, the bill was accompanied by endorsements of the Secretary of the Interior, of the Bureau of Reclamation and by endorsing resolutions adopted by a conference of representatives from all of the arid states which was held in Washington, D. C. in February 1928.

It is not hoped that from the bill presented, settlement problems will be at an end on all of the twenty-seven projects. In fact it is the intention to apply this first \$500,000 appropriated to but five projects, the Belle Fourche, the River-ton, the Milk River, the Lower Yellowstone and the Willwood division of the Shoshone Project, all of which are urgently in need of such a measure. Irrigation works have been constructed for these five projects at an aggregated cost of \$18,771,000, providing water for 238,070 acres of irrigable land. During the season of 1926, 78,670 acres were irrigated; in 1927 this was decreased to 57,480 acres, approximately one-fourth of their agricultural area. Hence, approximately three-fourths of the irrigable area is unsettled and undeveloped. It is the scope of the proposed measure to rehabilitate and settle the unoccupied land comprising approximately 1,400 eighty-acre units on these projects. It is realized that \$500,000 will serve merely as an opportunity to test the theory on which the bill is founded; and Dr. Mead, describing the full portent of the bill before the Committee of the House, stated:

I do not want any one to think that a half million dollars is an adequate provision for this proposed development; but I do feel that in starting out we ought to start with a careful program, and we ought not to ask for any more than is necessary to do that. If a half million dollars is appropriated and we spend that and are able to come back in a couple of years and show results, we will be justified in asking for more.⁴

Under the terms of this bill, and as its title indicates, provision is made, not only for credit advances to aid the

⁴ Hearings on H. R. 9956, 65.

settlers, but also for agricultural advisers who direct in intimate detail the economic progress of each settler's activities. In reference to the range of duties falling within their scope, Mr. George C. Kreutzer, the late Director of Reclamation Economics, explained:

This would include assisting them (the settlers) with coöperative marketing, securing more and better livestock, and provide for collective action in buying and selling and in planning what is regarded as sound agricultural practice. In other words, he would have his hand on the settler's shoulder at all times. We have found where we have had that kind of assistance it produces results.⁵

It is believed that under the terms of this act, more revenue will be forthcoming from the existing projects. The activities of the years since the passage of the Fact Finders' Act have resulted in economic betterments which have caused 1928 reclamation repayments to exceed those of 1927 by \$1,000,000. It is felt that "these repayments will grow at an increasing rate if help is provided so that we can build up the earning power of projects."⁶ Mr. Kreutzer expressed it thus:

If the benefits of this bill are extended to these projects by making these farms ready for settlement, then settlers with two to three thousand dollars capital can make an income the first year and become established. . . . As I see it, the purpose of this bill is really twofold. One is to aid in getting settlers by providing an authority to effect necessary improvements, thus making the farms attractive, and, secondly, that the use of the credit releases his capital to go into productive enterprises; that is to say, for livestock, farm equipment, and seeds; and to meet living expenses the first year while a crop is being grown.⁷

Measures similar to this have been enacted in many foreign countries, aiming to further Government land settlement. Both aid and direction is afforded settlers, the former by means of advances of capital with lenient terms and the latter through the employment of expert advisers who endeavor to advance the interest of settlement in every way possible. In Germany, for example, "Fruit trees of all kinds are planted in the gardens of the settlers, and highways; coöperative credit associations are formed as well as other coöperative societies. A number of agricultural schools and winter

⁵ Ibid., p. 59.

⁶ Ibid., p. 58.

⁷ Ibid., p. 55.

schools have been established, farming schools for the sons of the settlers, and housekeeping schools for the daughters.”⁸ Plainly, the United States is not a pioneer in rural community development, but is behind older nations in the work of making farm life attractive. As observed by Dr. Mead before the committee reviewing the bill, “Twenty years from now we will wonder why we ever considered reclamation without including the features that we are proposing to include in this bill. They are an essential part of reclamation and they are made part of it by every country except ours. We are only just getting into line. We are not proposing any innovation.”⁹

Of coördinate interest with the measure just outlined, are the investigations recently conducted with a view to the promotion of better rural conditions and a more advanced type of agriculture in the South. Pursuant to appropriations made by Congress in 1924 and 1926, three special advisers were appointed who were authorized to investigate and report on the economic feasibility of creating organized rural communities in the South, in order to demonstrate methods of reclamation and benefits of planned rural development. Prior to the investigation, the governors of all the Southern states had been invited to submit for the experiment a tract of land representative of the opportunities of that state large enough to found a community of at least 100 families. Seven states submitted tracts, and the investigations conducted resulted in the approval by the special advisers of these tracts aggregating an area of 135,000 acres in the states of North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi and Tennessee, for the creation of organized farming communities.

They further advised that the plans for the establishment of such communities should be based upon “(a) Expert and experienced planning and supervision; (b) Adequate capital funds as loans for colonists to be repaid on low terms at low rates of interest; (c) Desirability and necessity for success of

⁸ Ibid., p. 79.

⁹ Ibid., p. 70.

coöperation among the private, local, State, and all Federal Government agencies having related functions.”¹⁰

As the result of the report submitted by this impartial advisory committee, in addition to the support given the movement by a Southern Reclamation Conference held in Washington, D. C., December 14 and 15, 1927,¹¹ like bills¹² were introduced in both the Senate and House providing for the creation of organized rural communities as demonstration colonies. The bills provided that there should be acquired by the Secretary of the Interior in eleven southern states,¹³ tracts of land of sufficient size to permit the creation in each of at least two hundred farms and farm workers' allotments. These, it is stated, should be offered for sale, the purchase price made repayable in forty years with interest at 4 per cent. In addition, the Secretary is authorized to advance for permanent improvements, sums, not to exceed \$3,000 for farm allotments, and not to exceed \$1,000 for farm workers' allotments, which are to be repaid in 28 years, bearing interest at 6 per cent. The bill further authorizes the appropriation of \$10,000,000 from Treasury funds, of which not more than \$2,000,000 is to be expended in any one of the States.

This bill, it is evident, extends the policy of aided and directed settlement—the principle of the bill applying to Western projects—to a new area, and applies this principle in accordance with conditions peculiar to that area. Southern agriculture was found by the special advisers to be suffering from handicaps, a great many of which could, it was felt, be removed by applying the theory found in this bill to the chosen tracts. Organized rural communities, planned under the proposed scheme, should serve as examples to other districts not so aided and should put to end, it is thought, a

¹⁰ H. Doc. No. 765, part I, 69th Cong., 2d sess., “Reclamation and Rural Development in the South,” 1927, p. 83.

¹¹ Proceedings of this conference are to be found in S. Doc. No. 45, 70th Cong., 1st sess. (1928).

¹² S. 2015 and H. R. 8221, 70th Cong., 1st sess.

¹³ The states mentioned in the bill are Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia.

dependence upon the one-crop system of agriculture, the predominance of tenancy, the present tendency to the abandonment of farms, the inadequate marketing facilities of the region and the general unattractive rural environment characteristic of the South.

Clearly, the theory of reclamation, as exemplified in these two bills of Southern and Western application, has undergone a fundamental change. Whereas before it was largely a sectional policy, it now becomes national in scope. And what before was an engineering activity, has come into its truer meaning and significance as an economic institution. As stated by the Southern reclamation advisers:

Heretofore reclamation in the United States has been conceived as an undertaking merely in civil engineering to put water on dry lands or remove water from swamp land. The nature of settlement and the success of the settlers were not properly considered. It is now felt that land which has been 'reclaimed' in the engineering sense has not been reclaimed for human uses unless there exist upon it happy, prosperous people. Without them, water charges can not be paid, irrigation will cease, drainage canals will fill up. Obviously, reclamation is a human as well as an engineering problem. The main object of reclamation therefore must be to establish farming communities with a fair chance of success; engineering works and all other technical aid must be directed to this end.¹⁴

This same thought was well expressed in an address delivered by the Hon. W. M. Whittington, Member of Congress from Mississippi, before the Southern Reclamation Conference. At this meeting he said:

There has been a revolution in the fundamental principles underlying reclamation. An evolution in the policy is easily observed. In all sections of the country the underlying principles that must govern all successful reclamation is aided and directed settlement. We have the experience of 25 years to profit by. Our mistakes in reclamation will be too expensive if we do not profit by them. The Bureau of Reclamation is aware that many projects have failed. There is much criticism of the Federal reclamation policy. Some \$25,000,000 advanced by the Federal Government have been charged off. Reclamation has not been profitable in many cases. The Federal Treasury has lost in many instances. We have come to know that reclamation means building up a community as well as the construction of dams and reservoirs. The original idea of building dams and constructing canals is not enough. Turning water on dry land is not reclamation. We have come to know that the

¹⁴ H. Doc. No. 765, part 1, 69th Cong., 2d sess., 6.

failure to recognize other important elements is responsible for the criticism directed against the general policy. The defect in the policy was not in the method of construction but it was in the matter of settlement. The failure is attributable to the neglect of the human element. It takes men to build a community. Settlers must be given a chance; they must have credit. There must be a community life. Settlements can not be in isolated units, but must be in groups to secure social and economic advantages. . . . The modern and better idea is that in reclamation and rural development the fundamental element is not necessarily the reclamation of more land, but the building of homes; not the construction of more improvements, but the establishment of communities with facilities for social, business, and intellectual life that are attractive to worthwhile citizens.¹⁵

¹⁵ Proceedings of the Southern Reclamation Conference, S. Doc. No. 45, 70th Cong., 1st sess., 55 ff.

CONCLUSION

In the preceding pages, little has been said concerning the economic feasibility of continuing the reclamation policy to new projects or of bringing new areas into intensive agricultural production. Arguments emphasizing the present tendency toward over-production in agriculture, and crediting reclamation in large measure with responsibility for the resulting agricultural depression, have been numerous. With equal emphasis, these have been refuted by statements that land under reclamation works constitutes less than one-tenth of one per cent. of all the land in agricultural production in the United States, and that the products produced thereon are in the nature of special products, which do not enter into the commodity lists now suffering from over-production.

It is the opinion of the writer that there should be some coördination of our reclamation policy with agricultural tendencies, in so far as that is possible, by which reclamation may become in small degree a stabilizer in agricultural production.

However, whatever is to be the future of reclamation,—whether the policy is to be continued or curtailed, the fact stands that it is the duty of the Government to make the twenty-six existing projects as successful as possible. The experiment in Federal Reclamation was originated as an effort toward homebuilding—as a social experiment—and nothing should be left undone until a successful realization of this purpose has been achieved on all the projects. In that there has not been attained on many of the projects that degree of economic success which is rightfully theirs under the intent of the law, reclamation is to be censured.

Homebuilding, as the most forceful argument projected when the bill was passed in 1902, should be the yardstick by which we measure its success after a period of a quarter century. Truly, the defense of the projects “must run in

terms of their social importance to the State and Nation. And," as Dr. Johnson stated, "this fact emphasizes the necessity of giving at least as much attention to the community building aspect of reclamation as to the engineering aspect."¹

It should appear from the present study that, while there are two phases to the task of creating future reclamation success,—namely, that (1) of demonstrating the advantages of financial aid and that (2) of demonstrating the advantages of directed group settlement,—the two can be undertaken as parallel activities; and as success is attained in one, it will be found to contribute to the success of the other. The advancement of credit by the Government, providing thus "the missing link in American irrigation development," and planned community settlement which affords effective group action, are essential in solving the economic and social problems of farm life in the compact reclamation areas. By an application of these two measures, Federal Reclamation will occupy the rôle which it was intended to fill—that of a successful homebuilder.

¹ Report by Dr. Alvin Johnson, *op. cit.*, p. 16.

INDEX

- Artesian wells for irrigation, 24.
- Belle Fourche Project, 83, 96 ff., 116.
- Boise Project, 54, 80.
- Brown, Dr. Hugh A., 74.
- Bynum District, 106 ff.
- Carey Act, 33-35, 47.
- Carey, Senator Joseph M., 33.
- Cleveland, President Grover, 36.
- Conservation, 24, 25, 26, 39, 40 and note.
- Cost Review Board, 60.
- Davis, Arthur P., 51.
- Davis, D. W., 51.
- Desert Land Act (1877), 22, 23.
- Desert Land Act (1890), 23.
- Desert Land Act (1891), 23.
- Dacey, Professor A. V. (cited), 15, 34 note.
- Durham Settlement, 87, 91 ff.
- Egyptian Irrigation, 21 and note.
- Extension Act (1914), 60, 61.
- Fact Finders' Act (1924), 71, 72 and note, 114.
- Fact Finders' Committee, 62, 70, 74, 75, 114.
- Geological Survey, 51, 53.
- Grant, President, 22.
- Harrison, President, 40.
- Hibbard, Benjamin H. (cited), 13 note, 14.
- Hinton, Richard J., 25.
- Homebuilding, 36, 37, 65, 123, 124.
- Homestead Act, 13, 14, 36, 47.
- Irrigation Congresses, 30, 31, 32 note, 38, 40 note.
- Johnson, Dr. Alvin, 81, 89, 106, 124.
- Kreutzer, George C., 74, 117.
- Lower Yellowstone Project, 82, 87, 99 ff., 116.
- Marsh, George P., 17 ff., 25 note.
- Mead, Dr. Elwood, 51, 74, 91, 114, 116, 118.
- Milk River Project, 53, 82, 84 ff., 88, 116.
- Minidoka Project, 80, 83, 84, 87, 103 ff.
- Newell, F. H., 49-51.
- Newlands Project, 53.
- North Platte Project, 53, 80.
- O'Donnell, I. D., 74.
- Okanogan Project, 100.
- Orland Project, 84, 102.
- Powell, Major John Wesley, 23, 26.
- Reclamation Act, 47, 52, 64.
- Reclamation Economics, 74.
- Reclamation Extension Act, 60, 61.
- Reclamation Fund, 47, 53, 57, 58, 59, 65.
- Riverton Project, 83, 101, 116.
- Roosevelt, President Theodore, 37, 39, 40, 45.
- Salt River Project, 53.
- Shoshone Project, 116.
- Southern Reclamation Conference, 119.
- Special Advisers on Reclamation, 62, 70, 74, 75, 114.
- Sun River Project, 82, 87, 93 ff.
- Supervisor of Irrigation, 74.
- Teele, R. P. (cited), 51 note.
- Toole, Governor, 29.

VITA

Dorothy Lampen was born in Great Falls, Montana, August 17, 1904. She attended the public schools of Great Falls and was graduated from the Great Falls High School in 1922. In September 1922, she entered Carleton College, Northfield, Minnesota, from which she received the degree of Bachelor of Arts in June 1926. Since then she has been enrolled as a student in the Department of Political Economy of the Johns Hopkins University.

